

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	<b>SECTION 1</b>	<b>H1</b>			
	<b>BILL No. 1</b>	<b>H1</b>			
	<b>PRELIMINARIES</b>	<b>H1</b>			
	BUILDING AGREEMENT AND PRELIMINARIES	H2			
	The JBCC Principal Building Agreement (May 2018 edition 6.2) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described	H3			
	The JBCC Principal Building Agreement Contract Data EC and the JBCC Principal Building Agreement Contract Data CE form an integral part of this agreement	H3			
	The ASQSQ Preliminaries (November 2007 edition) published by the Association of South African Quantity Surveyors for use with the said JBCC Principal Building Agreement shall be deemed to be incorporated in these bills of quantities Contractors are referred to the above mentioned documents for the intent and meaning of each clause thereof These clauses are hereinafter referred to by clause number and heading only. Where standard clauses or alternatives are not entirely applicable to this agreement such modifications, corrections or supplements as will apply are given under each relevant clause heading and such modifications, corrections or supplements shall take precedence notwithstanding anything contrary contained in the above mentioned documents Where any item is not relevant to this specific agreement such item is marked N/A (signifying "not applicable")	H3			
	PREAMBLES FOR TRADES	H2			
	The Model Preambles for Trades (2008 edition) as 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 Model Preambles will be entertained Supplementary preambles are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles shall take precedence over the provisions of the said Model Preambles The contractor's prices for all items throughout these bills of quantities must take account of and include for all of the obligations, requirements and specifications given in the said Model Preambles and in any supplementary preambles	H3			
	PRICING OF PRELIMINARIES	H2			

	Should the contractor select Option A in terms of sub clause 3.2.1 in the Contract Data - Contractor to Employer (CE) for the purpose of adjustment of these preliminaries, the amount entered into the amount column in these preliminaries is to be divided into one or more of the three categories provided namely Fixed (F), Value Related (V) and Time Related (T)	H3		
	SECTION A: PRINCIPAL BUILDING AGREEMENT	H2		
	Definitions (A1)	H3		
	Clause 1.0 - Definitions and interpretation	H3		
	The measuring system used for the preparation of the bills of quantities is the Standard System of Measuring Building Work (sixth edition, revised 1999) published by the Association of South African Quantity Surveyors [1.1] F:.....			
1/1/1	V:..... T:.....	Item	1.0	
	Objective and preparation (A2 - A14)	H3		
	Clause 2.0 - Offer acceptance and performance obligations F:..... V:.....			
1/1/2	T:.....	Item		
	Clause 3.0 - Documents	H3		
	Provision is made in the summary page of these bills of quantities for the inclusion of Value Added Tax (VAT) [3.5]	H3		
	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 [3.9] F:..... V:.....			
1/1/3	T:.....	Item		
	Clause 4.0 - Design responsibility	H3		
	F:..... V:.....			
1/1/4	T:.....	Item		
	Clause 5.0 - Employer's agents	H3		
	F:..... V:.....			
1/1/5	T:.....	Item		
	Clause 6.0 - Contractor's site representative	H3		
	F:..... V:.....			
1/1/6	T:.....	Item		
	Clause 7.0 - Compliance with laws and regulations	H3		
	Without limiting the generality of the provisions of clause 7.0, the contractor's attention is drawn to the provisions of the Construction Regulations, 2014 issued in terms of the Occupational Health and Safety Act, 1993. 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 opposite this item for compliance with the act and the regulations and the reasonable provisions of the aforementioned health and safety specification [7.1]	H3		
	F:..... V:.....			
1/1/7	T:.....	Item		
	Clause 8.0 - Works risk	H3		
	F:..... V:.....			
1/1/8	T:.....	Item		
	Clause 9.0 - Indemnities	H3		
	F:..... V:.....			
1/1/9	T:.....	Item		

	Clause 10.0 - General insurances F:..... V:..... T:.....	H3		
1/1/10	Clause 11.0 - Special insurances F:..... V:..... T:.....	Item H3		
1/1/11	Clause 12.0 - Effecting insurances F:..... V:..... T:.....	Item H3		
1/1/12	Clause 13.0 - Assignment F:..... V:..... T:.....	Item H3		
1/1/13	Clause 14.0 - Security F:..... V:..... T:.....	Item H3		
1/1/14	Execution (A15 - A23) Clause 15.0 - Preparation for and execution of the works F:..... V:..... T:.....	Item H3		
1/1/15	Clause 16.0 - Site and access Certain areas will be occupied during the construction period and the contractor must execute the works with as little noise and disturbance as possible to the occupants. [16.6] F:..... V:..... T:.....	Item H3		
1/1/16	Clause 17.0 - Contract instructions F:..... V:..... T:.....	Item H3		
1/1/17	Clause 18.0 -Setting out of the works  The contractor shall notify the principal agent if any encroachment of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachments [18.1] F:..... V:..... T:.....	Item H3		
1/1/18	Clause 19.0 - Temporary works and plant Clause 19.1.1 - Enclosure of the works F:..... V:..... T:.....	Item H3		
1/1/19	Clause 19.1.2 - Office accommodation - provide suitable office accommodation for site meetings with tables and chairs for ten people F:..... V:..... T:.....	Item		
1/1/20	Clause 20.0 - Nominated subcontractors Refer to the provisions on general attendance hereinafter F:..... V:..... T:.....	Item H3		
1/1/21	Clause 21.0 - Selected subcontractors  General attendance of n/s subcontractors for pricing by the contractor shall be in accordance with the n/s agreement. Notwithstanding this provision, general attendance shall be deemed to include for the contractor to provide free of charge to any n/s subcontractor such scaffolding as may reasonably be required by such n/s subcontractor for the execution of the relevant subcontract work F:..... V:..... T:.....	Item H3		
1/1/22	Clause 22.0 - Employer's direct contractors	Item H3		

1/1/23	F:..... V:..... T:.....	Item		
	Clause 23.0 - Contractor's domestic subcontractors	H3		
1/1/24	F:..... V:..... T:.....	Item		
	Completion (A24 - A30)	H3		
1/1/25	Clause 24.0 - Practical completion F:..... V:..... T:.....	Item		
	Clause 25.0 - Works completion	H3		
1/1/26	F:..... V:..... T:.....	Item		
	Clause 26.0 - Final completion	H3		
1/1/27	F:..... V:..... T:.....	Item		
	Clause 27.0 - Latent defects liability period	H3		
1/1/28	F:..... V:..... T:.....	Item		
	Clause 28.0 - Sectional completion	H3		
1/1/29	F:..... V:..... T:.....	Item		
	Clause 29.0 - Revision of date for practical completion	H3		
	The removal and replacement of materials and/or workmanship 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 (Clause 29.3) F:.....			
1/1/30	V:..... T:.....	Item		
	Clause 30.0 - Penalty for late or non-completion: 0.05% of the Contract Amount inclusive of Value Added Tax per Calendar day	H3		
1/1/31	F:..... V:..... T:.....	Item		
	Payment (A31 - A35)	H3		
	Clause 31.0 - Interim payment	H3		
	Materials and goods stored off site shall not be included in the amount authorised for payment [31.6.5] F:..... V:.....			
1/1/32	T:.....	Item		
	Clause 32.0 - Adjustment to the contract value - NOT APPLICABLE	H3		
	All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the contractor [32.13] Where prices are submitted by the contractor or n/s subcontractor during the progress of the works in respect of contract instructions or in regard to a claim under the terms of the 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 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 for loss of profit shall not be entertained [32.2] F:.....			
1/1/33	V:..... T:.....	N/A		
	Clause 33.0 - Recovery of expense and loss	H3		

1/1/34	F:..... V:..... T:..... Clause 34.0 - Final account and final payment	Item H3		
1/1/35	F:..... V:..... T:..... Clause 35.0 - Payment to other parties	Item H3		
1/1/36	F:..... V:..... T:..... Termination (A36 - A39) Clause 36.0 - Termination by employer - contractor's default	Item H3		
1/1/37	F:..... V:..... T:..... Clause 37.0 - Termination by employer - loss and damage	Item		
1/1/38	F:..... V:..... T:..... Clause 38.0 - Termination by contractor - employer's default	Item		
1/1/39	F:..... V:..... T:..... Clause 39.0 - Termination - cessation of the works	Item		
1/1/40	F:..... V:..... T:..... Dispute (A40) Clause 40.0 - Settlement of disputes	Item H3		
1/1/41	F:..... V:..... T:..... Contract variables (A41 - A42) Clause 41.0 - Post tender provisions	Item H3 H3		
1/1/42	The contractor is to complete and submit with his tender the JBCC Principal Building Agreement Contract Data CE F:..... V:..... T:..... Clause 42.0 - Contractual agreement	Item H3		
1/1/43	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:..... SECTION B: ASAQS (NOVEMBER 2007 EDITION) PRELIMINARIES Definitions and interpretation	Item H2 H3		
1/1/44	Clause 1.0 - Definitions and interpretation F:..... V:..... T:..... Documents (B2) Clause 2.1 - Checking of documents	Item H3		
1/1/45	F:..... V:..... T:..... Clause 2.2 - Provisional bills of quantities	Item H3		
1/1/46	F:..... V:..... T:..... Clause 2.3 - Availability of construction documentation	Item H3		
1/1/47	The budgetary allowances and selected subcontract amounts allocated for subsequent trades included in this agreement will be separately procured, based on multiple procurement of selected subcontractors during the construction period F:..... V:..... T:..... Previous work and adjoining properties (B3)	Item H3		

	Clause 3.1 - Previous work - dimensional accuracy F:..... V:..... T:.....			
1/1/48	Clause 3.2 - Previous work - defects F:..... V:..... T:.....	Item H3		
1/1/49	Clause 3.3 - Inspection of adjoining properties F:..... V:..... T:.....	Item H3		
1/1/50	Samples, shop drawings and manufacturer's instructions (B4) T:.....	Item H3		
1/1/51	Clause 4.1 - Samples of materials F:..... V:..... T:..... Clause 4.2 - Workmanship samples F:..... V:..... T:.....	Item H3		
1/1/52	Clause 4.3 - Shop drawings F:..... V:..... T:.....	Item H3		
1/1/53	Clause 4.4 - Compliance with manufacturer's instructions T:.....	Item H3		
1/1/54	Clause 4.4 - Compliance with manufacturer's instructions F:..... V:..... T:..... Deposits and fees (B5)	Item H3		
1/1/55	Clause 5.1 - Deposits and fees F:..... V:..... T:..... Temporary services (B6)	Item H3		
1/1/56	Clause 6.1 - Water F:..... V:..... T:.....	Item		
1/1/57	Clause 6.2 - Electricity F:..... V:..... T:.....	Item		
1/1/58	Clause 6.3 - Telecommunication facilities F:..... V:..... T:.....	Item		
1/1/59	Clause 6.4 - Ablution facilities F:..... V:..... T:..... Prime cost amounts (B7)	Item H3		
1/1/60	Clause 7.1 - Responsibility for prime cost amounts F:..... V:..... T:..... Special attendance on n/s subcontractors (B8)	Item H3		
1/1/61	Clause 8.1 - Special attendance F:..... V:..... T:..... General (B9)	Item H3		
1/1/62	Clause 9.1 - Protection of the works F:..... V:..... T:..... Clause 9.2 - Protection/isolation of existing/ occupied works	Item H3		
1/1/63	Certain areas of the site will be occupied during the construction period No F:..... V:..... T:.....	Item		
1/1/64	Clause 9.3 - Security of the works F:..... V:..... T:.....	Item		
1/1/65	Clause 9.4 - Notice before covering work F:..... V:..... T:.....	Item		



1/1/73	<p>The contractor shall take delivery of, handle, store, use, apply and/or fix all proprietary branded products in strict accordance with the manufacturers' instructions after consultation with the manufacturer's authorised representative</p> <p>Contract instructions F:..... V:..... T:.....</p>	H3	Item			
1/1/74	<p>Contract instructions issued on site are to be recorded in triplicate in a contract instruction book which is to be supplied and maintained on site by the contractor</p> <p>Labour record F:..... V:..... T:.....</p>	H3	Item			
1/1/75	<p>At the end of each week the contractor shall provide the principal agent with a written record, in schedule form, reflecting the number and descriptions of tradesmen and labourers employed by him and all subcontractors on the works each day of that week</p> <p>Plant record F:..... V:..... T:.....</p>	H3	Item			
1/1/76	<p>At the end of each week the contractor shall provide the principal agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools used on the works each day of that week</p> <p>Guarantees F:..... V:..... T:.....</p>	H3	Item			
1/1/77	<p>Where guarantees are called for, the contractor shall obtain a written guarantee, addressed to the employer, from the firm supplying the materials and/or doing the work and shall deliver same to the principal agent on the certified completion of the contract. The guarantee shall state that workmanship, materials and installation are guaranteed for a specified period from the date of certified completion of the contract, and that any defects that may arise during the specified period shall be made good at the expense of the firm supplying the materials and/or doing the work, upon written notice from the principal agent to do so. This guarantee will not be enforced if the work is damaged by defects in the construction of the building in which case the responsibility for replacement shall rest entirely with the contractor. The principal agent shall be the sole judge of the cause responsible for defects in the work and his decision shall be final and binding in terms of clause 40.2 of the agreement</p> <p>Overtime F:..... V:..... T:.....</p>	H3	Item			
1/1/78	<p>Should overtime be required to be worked for any reason whatsoever, the costs of such overtime are to be borne by the contractor unless the principal agent has specifically authorised, in writing, prior to execution thereof, that costs for such overtime are to be borne by the employer</p> <p>Co-operation of contractor for cost management F:..... V:..... T:.....</p>	H3	Item			

	<p>It is specifically agreed that the contractor accepts the obligation of assisting the professional consultants 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 final building cost does not exceed the budget. The quantity surveyor undertakes to make available to the contractor all budgetary allowances and cost assessments/reports to enable the proper procedures to be implemented and the contractor will attend all cost plan review and cost management meetings. The contractor undertakes to extend these procedures in regard to all subcontractors</p>	H3		
	<p>C10 OCCUPATIONAL HEALTH AND SAFETY ACT  <del>the contractor shall comply with all the requirements</del>  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 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 Employer, 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, as well as the clauses that follow hereafter and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced under these clauses and no additional claims in this regard</p>	H3		
1/1/79	<p>F:..... V:.....  T:.....</p>	Item		
	<p>C10.1 OCCUPATIONAL HEALTH AND SAFETY</p>	H3		
1/1/80	<p>Provision of reflective vests F:.....  V:..... T:.....</p>	Item		
	<p>C 10.2 OCCUPATIONAL HEALTH AND SAFETY</p>	H3		
1/1/81	<p>Principal contractor's initial obligations in respect of the Health and Safety Act and Construction Regulations, etc F:..... V:.....  T:.....</p>	Item		
	<p>C 10.3 OCCUPATIONAL HEALTH AND SAFETY</p>	H3		
1/1/82	<p>Principal contractor's time related obligations in respect of the Health and Safety Act, Construction Regulations, etc F:..... V:.....  T:.....</p>	Item		
	<p>C 10.4 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)</p>	H3		

1/1/83	Provision of reflective vests F:..... V:..... T:..... C 10.5 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/84	Provision of hard hats F:..... V:..... T:..... C 10.6 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/85	Provision of protective footwear F:..... V:..... T:..... C 10.7 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/86	Provision of earplugs F:..... V:..... T:..... C 10.8 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/87	Provision of dust masks F:..... V:..... T:..... C 10.9 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/88	Provision of gloves F:..... V:..... T:..... C 10.10 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/89	Provision of high visibility overalls to SARTSM Chapter 13 Level 3 F:..... V:..... T:..... C 10.11 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT (PPE)	Item H3		
1/1/90	Provision of SANS approved ear defenders F:..... V:..... T:..... C 10.12 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/91	Provision of signage F:..... V:..... T:..... C10.13 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/92	Provision of full time construction health and safety officer (SACPCMP Registered) F:..... V:..... T:..... C10.14 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/93	Medical certificates and medical surveillance including initial (baseline) medical examinations, periodic examinations, and exit examinations F:..... V:..... T:..... C 10.15 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/94	Induction training F:..... V:..... T:..... C 10.16 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/95	Provision of first aid boxes to GSR requirements F:..... V:..... T:..... C 10.17 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/96	Noise monitoring including establishment of noise zones (plant), audiograms (personnel), etc F:..... V:..... T:..... C10.18 OCCUPATIONAL HEALTH AND SAFETY	Item H3		
1/1/97	Submission of health and safety file F:..... V:..... T:.....	Item		

	C11 HIV/AIDS AWARENESS	H3		
	It is required of the contractor to thoroughly study the HIV/AIDS Specification (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the bills of quantities / lump sum document. Provision for pricing of HIV/AIDS awareness is made under items C11.1 to C11.5 hereafter and it is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced hereunder, as the said items represent the only method of measurement and no additional items or extras to the contract in this regard shall be entertained. The contractor must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Employer, notwithstanding the provisions of clause A 31.0 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 paymentF:..... V:.....			
1/1/98	T:..... C 11.1 AWARENESS CHAMPAIGN	Item H3		
	Selection, appointment, briefing and making available of an Awareness Campaign including provision of all relevant services, all in accordance with the HIV/AIDS SpecificationF:.....			
1/1/99	V:..... T:..... C 11.2 AWARENESS WORKSHOPS	Item H3		
	Selection and appointment of a competent Service Provider approved by the Employer, provision of a Service Provider Workshop Plan and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification F:.....			
1/1/100	V:..... T:..... C11.3 POSTERS, BOOKLETS, VIDEOS, ETC.	Item H3		
	Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the construction period, all in accordance with the HIV/AIDS Specification F:..... V:.....			
1/1/101	T:..... C 11.4 ACCESS TO CONDOMS	Item H3		
	Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the construction period, all in accordance with the HIV/AIDS Specification F:.....			
1/1/102	V:..... T:..... C 11.5 MONITORING	Item H3		

1/1/103	Monitoring HIV/AIDS awareness of workers, providing the Employer with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the construction period and close out, all in accordance with the HIV/AIDS Specification F:..... V:..... T:.....	Item			
1/1/104	The drawings issued with the tender documents do not comprise the complete set but serve as a guide only for tendering purposes and for indicating the scope of the work to enable the tenderer to acquaint himself with the nature and extent of the works and the manner in which they are to be executed. Should any part of the drawings not be clearly understood by the tenderer he shall before submitting his tender, obtain clarification in writing from the principal agent C12: Contract drawings F:..... V:..... T:.....	H3 Item			
1/1/105	C13: General preambles F:..... V:..... T:.....	Item			
1/1/106	Wherever a trade name form any product has been described in the bills of quantities / lump sum document, The tenderer's attention is drawn to the fact that any other product of equal quality may be used subject to the written approval of the principal agent being obtained prior to the closing date for submission of tenders If prior written approval for an alternative product is not obtained, the product described shall be deemed to have been tendered for. C14: Trade names F:..... V:..... T:..... SUMMARY OF CATEGORIES Category : Fixed R..... Category : Value R..... Category : Time R.....	H3 Item H3			

**SECTION 2**  
**BILL NO.1**  
**ALTERATIONS**  
PREAMBLES

H1  
H1  
H1  
H1

Note :1. The tenderer is advised to refer to the Model Preambles before pricing this Bill 2. The tenderer is advised to study the (GP ASC Rev 0) (General specification of materials and methods to be used for building contracts ) before pricing this bill. The tenderers prices will be deemed to include for any such associated work.

H4

Notes: The Contractor must read each description throughout this bills of quantities in conjunction with and in the context of the obligations, the Model Preambles for Trades (2008 Edition) and any supplementary Preambles to the Model Preambles forming part of these Bills of Quantities No claims arising from brevity of description of items fully described in the said Model Preambles for Trades or Supplementary Preambles to Model Preambles will be granted

(CPAP WORK GROUP NO.102) unless otherwise stated

H4

GENERAL NOTES

H2

SHORT DESCRIPTIONS

H2

For further preambles and full descriptions of items not fully described in this Bill, reference must be made to supplementary preambles and descriptions in the other Bills of this Section. Such supplementary preambles and descriptions shall apply equally to the work in this Bill

GENERAL

H2

In taking down and removing existing work the utmost care shall be observed to prevent any structural or other damage to remaining portions of the building and the Contractor shall provide all shoring, needling, strutting, etc. to ensure the stability of all structures during alteration work Special care shall be exercised during the progress of the work to ensure that any electrical installations, water supply pipes, telephone and other services which may be encountered are not interfered with and notice shall be given to the Principal Agent if any disconnection or alterations become necessary

CONT

2/1/1

Any water supply and other piping that may be encountered and which is found necessary to disconnect or cut shall, after such disconnection or cutting has been authorised by the Principal Agent, be effectively stopped off and any new connections that may be necessary made with the proper tees, junction pieces, etc. to the satisfaction of the Principal Agent The Contractor shall afford every facility to workmen not under his control making disconnections and new connections as required to any services

MATERIALS FROM THE ALTERATIONS, CREDIT, ETC.

H2

OLD MATERIALS TO BECOME THE PROPERTY OF THE CONTRACTOR Old materials from alterations, except where described as to be "re-used" or "handed over" become the property of the Contractor who may allow credit for same where provided for in these Bills of Quantities OLD MATERIALS TO BE CARTED AWAY Old materials from the alterations, where described as to be "removed" as well as all rubbish, etc. must be regularly carted from the site and not be allowed to accumulate on or around the site OLD MATERIALS NOT TO BE RE-USED None of the old materials are to be used for new work except where specifically described as being "set aside for re-use" HANDING OVER OF MATERIALS Where certain materials or articles from alterations are described as to be "handed over" to the Principal Agent, such material or articles shall be properly stored by the Contractor, until handing over thereof. The Contractor must obtain an official receipt listing the materials or articles and dates of handing over. If the Contractor fails to submit the receipt when requested, it shall be deemed that the materials or articles are still in his possession and he will be held liable to the Department for the full replacement value thereof, which amount will be deducted from any monies due to the Contractor EXISTING BUILDINGS

H2

The existing buildings will be in use and occupied during the progress of the contract and the Contractor will be required to carry out the works in such a manner as will least interfere with the occupants and with the minimum of disturbance Contractors are also to note that due to the buildings being occupied the repairs and renovations works will be required to be executed in a specific order as will be determined by the Principal Agent in conjunction with the user client's authorised representative.

SIZE PERTAINING TO EXISTING WORK

H2

The Contractor is advised to take all dimensions affecting the existing buildings on the site and he will be held solely responsible for the correctness of sizes of all new work All sizes given in relation to existing work are approximate

MAKING GOOD DAMAGED WORK

H2

The Contractor shall make good in all trades to existing work where damaged or disturbed through the alterations with all necessary new materials to match the existing

FORMING NEW OPENINGS OR ALTERING OPENINGS IN EXISTING WALLS

H2

Descriptions of forming new openings or altering openings in existing walls shall be deemed to include breaking out for and forming new brick, in-situ concrete or prestressed concrete lintels, including all reinforcement, formwork, turning pieces, etc., building up jumps or portion of openings as described with brickwork properly toothed and bonded to existing, building cavities of hollow walls solid where necessary and making good finishes all round on both sides and into reveals as described

BUILDING UP OPENINGS

H2

Descriptions of building up existing openings where given in number shall be deemed to include preparing existing surfaces all around, brickwork properly toothed and bonded to existing, wedging up and making good on both sides as described  
PROCEDURE OF WORK

H2

The Principal Agent reserves the right to direct the order in which the contract will be executed, should circumstances necessitate such action.

LOSS BY THEFT, FIRE OR OTHERWISE

H2

The risk of loss, theft, fire, storm, riot or otherwise of the buildings to be demolished and the materials therein shall rest entirely with the contractor immediately upon the handing over of the site. He shall take such steps as he may deem fit for his own protection against such loss.

Water and other piping

H2

Any water supply or other piping that may be met with and found necessary to disconnect or cut are to be effectually stopped off or grubbed up and removed and any new connections that may be necessary and are to be made with proper fittings and to the satisfaction of the Principal Agent to whom due notice is to be given regarding all alterations to existing services. Prices for items of demolitions, are where applicable, to include for taking out and removing all sanitary fittings, plumbing and water supplies.

Electrical and other services

H2

Special care is to be exercised not to unnecessarily interfere with any electric light, bell, power, telephone or other wires and fittings that may be met with and due notice must be given to the Principal Agent when any disconnections, removals, diversions, interruptions, etc. are necessary and the contractor is to afford every facility to the workmen carrying out this work.

The contractor must protect all work not removed such as walls, floors, doors, windows, fittings, etc. from damage during the progress of the work and provide all necessary materials for doing so. All shoring, etc. of portions of the existing buildings necessary to ensure the stability of the premises while executing the demolitions or alterations is to be provided by the contractor, who will be held solely responsible for any damage to persons or property and for safety of the structure throughout the contract period. The contractor will be required to make good at his own expense any damage that may occur.

Existing buildings occupied

H2

Tenderers are advised that the existing buildings will be in occupation during the building operations and due allowance must be made for the work being carried out in such a manner as will least interfere with the general routine of the occupants.

Adequate warning must be given if a particular section of the building has to be evacuated to carry out the work.

Noise prevention

H2

The contractor shall take special care to minimise noisy operations during business hours. Such measures will include, inter alia, the use of silent compressors and strict control of workmen.

The contractor shall demolish the portions of existing structures or buildings with a minimum amount of damage to adjoining buildings, materials, pavings, etc. Any damage caused is to be made good at his own expense with materials to match the existing to the entire satisfaction of the Architect. Tenderers should take particular note of and allow accordingly in their prices for the type of structure and materials to be encountered and the thickness of walls, concrete slabs, etc. to be demolished. Unless otherwise described all materials arising from the demolitions and alterations are to become the property of the contractor and he is to allow a credit for the same as provided for on the final summary page. These materials, including all rubbish and debris shall be immediately carted away and the site left clean and unencumbered. None of the old brick from the demolitions are to be re-used for any new brickwork.

Bricking up, altering or breaking new opening in existing walls

H2

Where the Contractor is required to form openings, alter openings or brick up openings in existing walls all brickwork shall be made good at jambs including properly bonding to existing. Brickwork in bricking up openings shall be wedged and pinned up to brickwork or concrete over in cement mortar. Cement screeds, pavings, granolithic, etc. in openings are to be levelled and prepared for raising of brickwork. Plaster to reveals to openings are to have all external angles rounded and making good of finishes is to include for junction with existing finishes. Where openings are described as having new brick lintols they are to be with minimum 300mm end bearings and prices are to include for brick reinforcement to suit the width of the wall. Lintols are to be three courses high up to span of 1000mm and four courses high up to span of 1000mm and four courses high when exceeding that span and brickwork is to be built in 1:3 cement mortar. Where openings are described as having precast prestressed concrete lintols they are to be with minimum 300mm end bearings of 30 MPa concrete. One prestressed lintol for each half brick thickness is required and is to be reinforced with and including all necessary high tensile wire.

Making good, etc.

H2

Prices are to include for making good in all trades to existing work, where damaged or disturbed through alterations, with all necessary new materials to match existing and leave complete and perfect in every respect.

NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 104 for CPAP formula purposes.

Temporary barriers, screens, etc

H2

2/1/2	Dust screen 2100mm high formed of suitable timber framing with 40% shade net material wrapped on including corners, ends, etc, to be used on all the phases of the construction project and in accordance to the Health and Safety specifications and regulations	m	40.0
	REMOVAL OF EXISTING WORK	H2	
	Taking down and removing roofs, floors, panelling, ceilings, partitions, etc	H3	
2/1/3	Gypsum plasterboard ceilings, including cornices, timber branderling, etc	m <sup>2</sup>	1022.0
	Taking out/off and removing machines, equipment, sanitary fittings, etc	H3	
2/1/4	Kitchen Cupboard	No	2.0
2/1/5	Kitchen sink	No	2.0
2/1/6	Water Closet	No	11.0
2/1/7	Wash Hand Basin	No	14.0
2/1/8	Urinal	No	4.0
2/1/9	Mirrors	No	9.0
	Hacking off the existing floor and wall tiles, etc, including	H3	
2/1/10	Wall tiles	m <sup>2</sup>	344.0
2/1/11	Floor tiles	m <sup>2</sup>	1093.0
	Hacking up/off and removing granolithic, screeds, plaster, etc from concrete or brickwork and preparing surfaces for new screeds, plaster, etc	H3	
2/1/12	Existing screed	m <sup>2</sup>	1093.0

	<b>SECTION 2</b>	<b>H1</b>		
	<b>BILL NO. 2</b>	<b>H1</b>		
	<b>CONCRETE, FORMWORK AND REINFORCEMENT</b>	<b>H1</b>		
	For preambles see "Model Preambles for Trades"			
	PREAMBLES	H2		
	For preambles see "Model Preambles for Trades"			
	CPAP ADJUSTMENT	H2		
	Unless otherwise stated all the following items shall be deemed to fall into Work Group 110 for Contract Price Adjustment Provisions			
	SUPPLEMENTARY PREAMBLES	H2		
	Cost of tests The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Project manager. The testing shall be undertaken by an independent firm or institution nominated by the contractor and to the approval of the Project Manager. (Test cubes are measured separately)			
	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 sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design purposes. 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	H2		
	30MPa/20mm concrete	H3		
	230mm concrete wall	m3	18.0	
	Slabs including beams and inverted beams	m3	4.0	
	TEST CUBES	H2		
2/2/13	Making and testing 150 x 150 x 150mm concrete strength test cubes (Provisional)	No	3.0	
	SMOOTH FORMWORK	H2		
	Smooth formwork to sides	H3		
2/2/14	Concrete walls	m <sup>2</sup>	158.0	
2/2/15	Slab with total height not exceeding 3m high	m <sup>2</sup>	30.0	
	Finishing top surfaces of concrete smooth with a wood float	H3		
2/2/16	Surface beds, slabs, etc	m <sup>2</sup>	30.0	
	REINFORCEMENT (PROVISIONAL)	H2		

2/2/17	High tensile steel reinforcement to structural concrete work All sizes bars	H3 †	13.0	
2/2/18	Fabric reinforcement Type 193 fabric reinforcement in concrete surface beds, slabs, etc	H3 m <sup>2</sup>	59.0	
<b>SECTION 2</b>				
<b>BILL NO. 3</b>				
<b>CARPENTRY AND JOINERY</b>				
NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 126 for CPAP formula purposes.				
SUPPLEMENTARY PREAMBLES				
Particle board:				
Particle board shall comply with the following specifications:				
a) SABS 1300 Particle board: exterior and flooring type				
b) SABS 1301 Particle board: interior type				
Joinery:				
Joinery Descriptions of frames shall be deemed to include frames, transomes, mullions, rails, etc				
Descriptions of hardwood joinery shall be deemed to include pelleting of bolt holes				
Fixing				
Fixing Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete				
Decorative laminate finish:				
Decorative laminate finish: Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish				
DOORS, ETC				
Semi-solid flush doors with veneer or similar on both sides hung to steel frames				
2/3/19	44mm Thick single door size 813 x 2125mm high	H3 No	1.0	
KITCHEN CUPBOARDS ETC				
Kitchen Cupboards				
2/3/20	Built-in-cupboard 4500mm x 650wide x 2100mm high with bottom, sides, divisions, shelves, hinged doors including sink and taps etc	H3 No	2.0	

**SECTION 2**

**BILL NO. 4**

**CEILINGS, PARTITIONS AND ACCESS FLOORING**

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 are measured elsewhere

SUSPENDED CEILINGS

Proprietary suspended ceilings

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

User note:

a) The above note to be included in the bills of quantities after confirmation of the basic design of the ceilings, lighting, air conditioning, etc

Drywall partition systems

Drywall partitions shall comprise 63,5mm top and bottom galvanised steel tracks with 63,5mm galvanised steel vertical studs at maximum 600mm centres, friction fitted or pop-riveted to the top and bottom tracks with similar additional vertical studs as necessary at abutments, ends, etc and covered as described with wallboard screwed to studding with "Drywall" screws at maximum 220mm centres. Boards shall be butt jointed and finished with drywall joining tape and jointing compound all in accordance with the manufacturer's instructions, complete with flat section aluminium skirtings. Intersections and abutments are measured separately and descriptions shall be deemed to include any additional studs, corner beads, jointing compound

SUSPENDED CEILINGS

Proprietary suspended ceilings

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

H1

H1

H1

H2

H3

H2

H3

H3

H3

H2

H4

	Fibre cement ceiling white 600 x 600 x 6mm thick cement ceiling boards with 12mm thick tapered edge plasterboard, fixed at right angles to 35mm concealed face suspended ceiling grid system with 24x35mm high galvanised steel knurled capped main tees at 2400mm centres and cross tees at 400mm centres, using 25mm drywall screws at 150mm centres			
2/4/21	600x600 Nutec fibre cement ceiling	H3 m <sup>2</sup>	56.0	
	White 600 x 600 x 15mm thick acoustic suspended ceiling grid system, laid on 24 x 38mm high slotted main tees at 1200mm c/c and 24 x 38mm high cross tees at 600mm c/c with galvanised exposed face all in white colour	H3		
2/4/22	600x600mm suspended ceiling boards	m <sup>2</sup>	966.0	
	Shadowline Cornices	H3		
2/4/23	Shadowline cornice	m	800.0	
	ceiling insulation	H3		
	100mm fibreglass insulation lapped not less than 100mm along all edges and laid on top of ceiling tiles between roof steel trusses, etc			
2/4/24	FIXED PARTITIONS	m <sup>2</sup> H2	0.0	
	Steel stud partitions frames consisting of 63,5mm steel studs inserted at 600mm centres into 63,5mm steel track at top and bottom including additional studs as necessary at abutments, ends,with both sides clad with one layer of 12,5mm	H3		
2/4/25	Partitioning with bottom track plugged and top track fixed to concrete slab 3m high	m <sup>2</sup>	295.0	
2/4/26	Extra over partition 3m high for fair end	No	10.0	

	<b>SECTION 2</b>	<b>H1</b>		
	<b>BILL NO. 5</b>	<b>H1</b>		
	<b>METALWORK</b>	<b>H1</b>		
	SUPPLEMENTARY PREAMBLES	H2		
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 136 for CPAP formula purposes. Tenderers are advised to study the "Model Preambles for Trades(1999 Edition) published by the Association of South African Quantity Surveyors before pricing this bill.			
	PRESSED STEEL DOOR FRAMES	H2		
2/5/27	1.6mm Rebated frames suitable for half brick walls Steel frame door 813 x 2125 mm high	H3 No	1.0	
	NATURAL ANODISED ALUMINIUM	H2		
	Natural anodised aluminium door frame with 6.38mm laminated safety glass to comply with SANS 10400-N	H3		
	Fitted into drywall partitioning	H3		
2/5/28	Single Aluminium glazed door to suit opening size 1075 x 2345mm high	No	14.0	
2/5/29	Double Aluminium glazed door to suit opening size 1575 x 2345mm high	No	1.0	
	SAFE DOOR	H2		
2/5/30	Standard steel single rebate transformer door 800 x 1854mm Strong room door	H3 No	2.0	

	<b>SECTION 2</b> <b>BILL NO. 6</b> <b>PLASTERING</b> SUPPLEMENTARY PREAMBLES NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 142 for CPAP formula purposes.	<b>H1</b> <b>H1</b> <b>H1</b> H2		
2/6/31	SCREEDS Screeds on concrete 30mm thick on floors	H2 H3 m <sup>2</sup>	1093.0	
2/6/32	INTERNAL PLASTER Rhinolite on drywall partitions On internal walls	H2 H3 m <sup>2</sup>	1032.0	

	<b>SECTION 2</b> <b>BILL NO. 7</b> <b>TILING</b> NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 144 for CPAP formula purposes. SUPPLEMENTARY PREAMBLES  Descriptions Unless described as "fixed with adhesive to plaster (plaster elsewhere)" descriptions of tiling on brick or concrete walls, columns, etc shall be deemed to include 1:4 cement plaster backing and descriptions of tiling on concrete floors etc shall be deemed to include 1:3 plaster bedding WALL TILING 300 x 300 mm Wall porcelain tiles fixed with adhesive to plaster On walls PORCELAIN FLOOR TILING 300 x 300 x 8mm tiles fixed with tile adhesive to specification On floors 100mm porcelain skirting	<b>H1</b> <b>H1</b> <b>H1</b>  H2  H2 H3 m <sup>2</sup> H2 H3 m <sup>2</sup> m			
2/7/33				344.0	
2/7/34				1093.0	
2/7/35				997.0	

**SECTION 2**  
**BILL NO. 8**  
**PLUMBING AND DRAINAGE (PROVISIONAL)**

SUPPLEMENTARY PREAMBLES

NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 148 for CPAP formula purposes.

polypropylene pipes:

Polypropylene pipes 54mm diameter and under shall be seamless copper coloured class 16 pipes jointed with heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated

Pipes shall be firmly fixed to walls etc with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions

All pipe diameters are nominal external

Concrete pipes:

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings

uPVC pipes and fittings:

Soil, waste and vent pipes and fittings shall be solvent weld jointed

uPVC pressure pipes and fittings:

Pipes for water supply shall be of the class stated

Pipes of 40mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings

Pipes of 50mm diameter and greater shall have sockets and spigots with push in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type 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. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall meet the SANS standards. Only compression fittings shall be used in walls or in ground

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

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

H1  
H1  
H1  
H2

H3

H3

H3

H3

H3

H3

H3

	Wire gratings	H3		
	Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings			
	Excavations	H3		
	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	H3		
	Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions			
	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 LD : Sewers LE : Stormwater drainage Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : 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 1200 LB : Bedding (Pipes). Unless otherwise described bedding of rigid pipes shall be class B bedding			
	Flush pans	H3		
	Flush pans shall have straight or side outlets and "P" or "S" traps as necessary			
	Stainless steelbasins, sinks, wash troughs, urinals, etc.	H3		
	Units shall have standard aprons on all exposed edges and filing keys against walls where applicable			
	Waste unions	H3		
	Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings			
	-----			
	SANITARY FITTINGS	H2		
	SABS approved sanirary fittings	H3		
2/8/36	Floor mounted paraplegic washdown suite colour white comprising semi close couple 90 deg outlet open rim washdown pan and matching 9 litre cistern as per the sanitary schedule	No	1.0	
2/8/37	Wall hung white open rim Water Closet pan with heavy duty single plastic flap seat	No	10.0	
2/8/38	510 x 405mm hibiscus white lavatory basin with two tapholes including integrated overflow and chainstay hole, bolted to wall with two 10mm bolts (counter measured elsewhere)	No	13.0	
2/8/39	Paraplegic WHB	No	1.0	
2/8/40	Wall hung urinal with an overall size of 565x275x210mm with top inlet or back inlet fittings including a 38mm chromium plated domical grating a spreader and two(2) hanger brackets.	No	4.0	
	TAPS, VALVES, ETC	H2		
	SABS Approcvod	H3		

2/8/41	Square pillar tap, chrome. Includes: hot and cold indices, 1/2" BSP male inlet, flanged backnut, and streamline outlet for flow aesthetics. SANS 226 Type 2, DZR brass.	No	13.0
2/8/42	Paraplegic single lever sink mixer, chrome-plated. Includes: aerated swivel outlet, mounting kit, and 1/2" female iron 400mm long flexible inlets. SANS 1480, DZR brass. SUNDRIES	No H2	1.0
2/8/43	Stainless steel 32mm diameter straight grab rail with Franke fine grip (Code:2510006) 750mm x 95mm deep plugged including a Franke "CNTX700A" Stainless steel 32mm diameter angle bar with Franke fine grip (Code:2510007) size 256 x 618 x 95mm deep plugged	No	2.0

	<p><b>SECTION 2</b>  <b>BILL NO. 9</b>  <b>GLAZING</b></p> <p>NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 150 for CPAP formula purposes. -----  -----</p> <p>TOPS, SHELVES, DOORS, MIRRORS, ETC  4mm Silvered float glass copper backed mirrors with 10mm bevelled and polished edges fixed with double sided adhesive tape  Mirror 600 x 500mm high plugged and screwed to the wall with stainless steel screws</p>	<p><b>H1</b>  <b>H1</b>  <b>H1</b></p> <p>H2  H3  No</p>	<p>9.0</p>	
2/9/44				



<b>BUILDER'S WORK</b>			
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2/3	CARPENTRY AND JOINERY	Page	35
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**SECTION 3**  
**BILL NO. 1**  
**LOW VOLTAGE DISTRIBUTION**  
**DISTRIBUTION BOARDS**

Complete Supply and installation: Low Voltage Reticulation

H1  
H1  
H1  
H2

H3

Rates shall include supply, delivery, storage, installation, accessories, supports. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).

Note: Some items measured hereunder maybe additional to items measured in schedule of materials installed by electronic subcontractor and therefore shall be thoroughly coordinated and checked.

Note: All material shall be SABS approved.

Distribution Boards shall be mild steel front access floor mounted with standard lockable latch type door handles. Body to be coloured "White" powder coating, front plate "White", complete with all accessories and sheet metal and all frames, sub-frames, busbars, fixtures, fittings, labels, signs, legend-cards etc.

H4

Supply and install distribution board as detailed and specified on the wiring diagram, standard quality specification for general electrical installations (CHCs) (DOH) and standard quality specification for electrical material and equipment (CHCs) (DOH). Distribution board shall comply with SANS 1765 Part II and shall be equipped with a 1.6mm thick minimum sheet steel reinforced tray, suitably braced and stiffened to carry the chassis, door and equipment. Distribution board shall be rendered moisture proof and vermin proof and shall be adequately ventilated according to IP54 minimum. All distribution board doors shall have high security sliding locking mechanism that will withstand vandalism and must be padlockable by means of rectangular type padlocks. The locking mechanism shall have a cover that prohibits the use of a bolt cutter to remove the padlock whilst providing easy access for operation. (Refer to drawing detail). Body to be coloured "Red" with powder coating, front panels "Red", complete with all accessories and sheet metal and all frames, sub-frames, busbars, fixtures, fittings, labels, signs, legend-cards etc. NB: Distribution Boards to be fitted in the factory and tested in accordance to specifications. Rate shall include delivery, off-loading and storage to site.

H3

Existing Main LT Distribution Board - DB1-LT

H3

3/1/1

Supply

No

1.0

3/1/2

Install

No

1.0

3/1/3

Distribution Board DB 2F-01 (Second Floor) Supply

No

1.0

3/1/4

Install

No

1.0

3/1/5

Distribution Board DB 3F-01 (Third Floor) Supply

No

1.0

3/1/6

Install

No

1.0

Distribution Board Service and Maintenance

H3

	Isolate, reconfigure existing main distribution board and re-energise complete distribution kiosk as per drawings. Work shall involve; - Adding circuit breakers to accommodate new load- Installation of new main switch(s) for 2nd and 3rd Floors.	H3		
	Supply, deliver and install the following protective devices to modify internal DB wiring according to latest SANS standards as per engineer's instructions. Refer to wiring diagrams for full details.NB: Minimum fault level current rating shall be 5kA. MCBs shall be of the same manufacture throughout the DB.	H3		
3/1/7	3P+N surge protection unit Class II	No		1.0
3/1/8	Install	No		1.0
3/1/9	150 A TP (6 kA) mcb Supply	No		1.0
3/1/10	Install	No		1.0
3/1/11	100 A TP (6 kA) mcb Supply	No		1.0
3/1/12	Install	No		1.0
3/1/13	100 A TP (6 kA) mcb Supply	No		1.0
3/1/14	Install	No		1.0
	Service and maintain distribution board as follows;	H3		
	Clean DB and remove stains, dirt, vermin and dust. Neatly arrange cables in DB. Ensure doors and panels fit and close appropriately. Ensure all circuits are correctly installed, i.e Live, Neutral & Earth. Ensure circuits feed correct appliances. Fix any Tripping circuits Ensure all circuits are correctly installed, i.e Live, Neutral & Earth. Ensure circuits feed correct appliances. Fix any Tripping circuits Identify any wires that are inappropriately sized and equipped with correct circuit protective devices.			
3/1/15	Tighten any loose connections.	No		1.0
	LOW VOLTAGE CABLING	H2		
	MAIN LT to DB'S	H3		
	Supply, deliver, install and connect 600V/1000V reticulation cables, bare Copper earth conductors installed in trenches, sleeves, cable ladders or cable trays.	H3		
	Supply, deliver and install cable terminations including all fastening materials, glands, shrouds, lugs and the connection of the cable lugs to the specified terminal equipment and connectors:	H3		
	Cables to have stranded Copper conductors. (Installation rate to include for installation of cable within wireways, trays ducts, sleeves, trenches, etc).	H3		
	Main LT to Sub-DB 2F-01 & Sub-DB3F-01	H2		
	Supply, deliver, install and connect 600V/1000V reticulation cables, bare Copper earth conductors installed in trenches, sleeves, cable ladders or cable trays.	H3		
	Supply, deliver and install cable terminations including all fastening materials, glands, shrouds, lugs and the connection of the cable lugs to the specified terminal equipment and connectors:	H3		
	Cables to have stranded Copper conductors. (Installation rate to include for installation of cable within wireways, trays ducts, sleeves, trenches, etc).	H3		

3/1/16	25 mm <sup>2</sup> , 4-core PVC/PVC/SWA/PVC Copper cable. Supply	m	40.0	
3/1/17	Install	m	40.0	
3/1/18	25 mm <sup>2</sup> , 4-core PVC/PVC/SWA/PVC cable terminations. Supply	No	4.0	
3/1/19	Install	No	4.0	
3/1/20	16 mm <sup>2</sup> , bare Copper earth wire. Supply	m	40.0	
3/1/21	Install	m	40.0	
3/1/22	16 mm <sup>2</sup> , bare earth Copper wire terminations. Supply	No	4.0	
3/1/23	Install	No	4.0	
	TESTING AND COMMISSIONING	H2		
3/1/24	Test and Commission the complete installation as included in all floors.	SUM	1.0	
3/1/25	Issue a Certificate of Compliance (CoC) in accordance with the SANS 0142-1 (2012) requirements per Distribution Boards.	SUM	1.0	
<b>SECTION 3</b>				
<b>BILL NO. 2</b>				
<b>WIREWAYS AND CHANNELLING SYSTEMS</b>				
General statement on rates: Rates shall include supply, delivery, storage, installation. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).				
Note: Some items measured hereunder maybe additional to items measured in schedule of materials installed by Electronic Subcontractor and therefore shall be thoroughly coordinated and checked.				
Note: All material shall be SABS approved.				
CONDUITS				
In addition to the general statement on rates above, rates for conduit shall also include all accessories such as couplers, adapters, bends, round elbows, tees, end caps, saddles, fixers, adhesives, etc., excepting junction/outlet boxes. Where chasing of brickwork or concrete media is required the rates shall be inclusive. Where drilling through brickwork and/or concrete media of up to 300 mm deep for 10 - 25 mm Ø conduit is required, the rate shall be inclusive.				
Conduit chased into brick work and surface made good ith matching plaster and/or tiling material: Note: Where the contractor has removed tiles. Matching tiles shall be sourced or as per Architect's requirements. Cost of newtiling shall be measured separately.				
3/2/26	20 mm Ø PVC. Supply	m	1000.0	
3/2/27	Install	m	1000.0	
3/2/28	25 mm Ø PVC. Supply	m	50.0	
3/2/29	Install	m	50.0	
Conduit surface mount in ceiling void or applicable area:				
3/2/30	20 mm Ø PVC. Supply	m	800.0	
3/2/31	Install	m	800.0	
3/2/32	25 mm Ø PVC. Supply	m	25.0	
3/2/33	Install	m	25.0	
3/2/34	20 mm Ø light duty galvanized steel. Supply	m	300.0	
3/2/35	Install	m	300.0	
3/2/36	25 mm Ø light duty galvanized steel. Supply	m	50.0	

3/2/37	Install	m	50.0
3/2/38	20 mm Ø PVC flexible conduit. Supply	m	50.0
3/2/39	Install	m	50.0
3/2/40	25 mm Ø PVC flexible conduit. Supply	m	25.0
3/2/41	Install	m	25.0
	CONDUIT BOXES	H3	
	Supply and install conduit boxes complete with all accessories including conduit adaptors:	H3	
	Outlet boxes excluding covers:	H3	
3/2/42	100 mm x 50 mm x 50 mm pressed steel. Supply	No	22.0
3/2/43	Install	No	22.0
3/2/44	100 mm x 100 mm x 50 mm pressed steel. Supply	No	50.0
3/2/45	Install	No	50.0
	Round boxes including covers:	H3	
	PVC 60 mm round, 25 mm deep for 20 mm Ø		
3/2/46	conduit. Supply	No	10.0
3/2/47	Install	No	10.0
	Galvanized steel 60 mm round, 25 mm deep		
3/2/48	junction box for 20 mm Ø conduit. Supply	No	5.0
3/2/49	Install	No	5.0
	DRAW BOXES	H3	
	Supply and install draw box. Draw box shall be mild steel front access with standard lockable latch type door handles. Body to be coloured "White" powder coating complete with all accessories and sheet metal and all frames, sub-frames.	H3	
3/2/50	Recessed wall mount 600 mm long x 450 mm wide x 110 mm deep distribution/junction/draw box. Supply	No	1.0
3/2/51	Install	No	1.0
	WIRING TRUNKING	H3	
	Supply and install pregalvanized steel wiring trunking complete with accessories such as support fixtures, suspension fixtures, fittings, bends, stop ends, covers, junction units, internal angles, etc. but excluding wiring.	H3	
3/2/52	76 x 63 mm (P8300) wiring duct c/w 3x 5A knock outs and cover. Supply	m	9.0
3/2/53	Install	m	9.0
	127 mm x 76 mm, 0.8 mm thick (P9000) wiring		
3/2/54	trunking with cover plates. Supply	m	9.0
3/2/55	Install	m	9.0
	POWER SKIRTING	H3	
	Supply and install aesthetic textured to hospital grey finish multifiskirt aluminum power skirting complete with all accessories including bends, elbows, end caps cover plates etc.	H3	
3/2/56	2 compartment multi-skirt trunking fixed to brick work with cover plates. Supply	m	18.0
3/2/57	Install	m	18.0
	FLOOR PEDESTAL	H3	
	Supply and install aesthetic textured to hospital grey finish floor pedestal aluminum power skirting complete with all accessories including cover plates etc.	H3	
	Cluster outlet pedestal floor box comprising 2 X 230V, 16A, round 3-PIN & 2-PIN, 2 gang switched socket outlet normal power - , c/w white steel cover plate, suitable to accommodate SANS164-1 & SANS		
3/2/58	164-2 outlets and 2 X RJ45 Data outlets Supply	m	35.0
3/2/59	Install	m	35.0

	SUNDRIES	H3	
	Blank covers c/w screws;	H3	
3/2/60	Blank steel cover plate (White) for 100 mm x 50 mm conduit box. Supply	No	5.0
3/2/61	Install	No	5.0
3/2/62	Blank steel cover plate (White) for 100 mm x 100 mm conduit box. Supply	No	5.0
3/2/63	Install	No	5.0
3/2/64	PVC cover for 60 mm round, 25 mm deep, for 25 mm Ø junction box. Supply	No	10.0
3/2/65	Install	No	10.0
	Drawwire:	H3	
3/2/66	Supply and install 2.0 mm Ø. drawwire in electronic cable wireways. Supply	m	150.0
3/2/67	Install	m	150.0
	WIREWAYS AND CHANNELING SYSTEMS 3rd Floor	H2	
3/2/68	20 mm Ø PVC. Supply	m	800.0
3/2/69	Install	m	800.0
3/2/70	25 mm Ø PVC. Supply	m	50.0
3/2/71	Install	m	50.0
	Conduit surface mount in ceiling void or applicable area:	H3	
3/2/72	20 mm Ø PVC. Supply	m	600.0
3/2/73	Install	m	600.0
3/2/74	25 mm Ø PVC. Supply	m	25.0
3/2/75	Install	m	25.0
3/2/76	20 mm Ø light duty galvanized steel. Supply	m	300.0
3/2/77	Install	m	300.0
3/2/78	25 mm Ø light duty galvanized steel. Supply	m	50.0
3/2/79	Install	m	50.0
3/2/80	20 mm Ø PVC flexible conduit. Supply	m	50.0
3/2/81	Install	m	50.0
3/2/82	25 mm Ø PVC flexible conduit. Supply	m	25.0
3/2/83	Install	m	25.0
	CONDUIT BOXES	H3	
	Supply and install conduit boxes complete with all accessories including conduit adaptors:	H3	
	Outlet boxes excluding covers:	H3	
3/2/84	100 mm x 50 mm x 50 mm pressed steel. Supply	No	15.0
3/2/85	Install	No	15.0
3/2/86	100 mm x 100 mm x 50 mm pressed steel. Supply	No	40.0
3/2/87	Install	No	40.0
	Round boxes including covers:	H3	
3/2/88	PVC 60 mm round, 25 mm deep for 20 mm Ø conduit. Supply	No	7.0
3/2/89	Install	No	7.0
3/2/90	Galvanized steel 60 mm round, 25 mm deep junction box for 20 mm Ø conduit. Supply	No	3.0
3/2/91	Install	No	3.0
	DRAW BOXES	H3	
	Supply and install draw box. Draw box shall be mild steel front access with standard lockable latch type door handles. Body to be coloured "White" powder coating complete with all accessories and sheet metal and all frames, sub-frames.	H3	
3/2/92	Recessed wall mount 600 mm long x 450 mm wide x 110 mm deep distribution/junction/draw box. Supply	No	1.0
3/2/93	Install	No	1.0
	WIRING TRUNKING	H3	

	Supply and install pregalvanized steel wiring trunking complete with accessories such as support fixtures, suspension fixtures, fittings, bends, stop ends, covers, junction units, internal angles, etc. but excluding wiring.	H3	
3/2/94	76 x 63 mm (P8300) wiring duct c/w 3x 5A knock outs and cover. Supply	m	9.0
3/2/95	Install	m	9.0
3/2/96	127 mm x 76 mm, 0.8 mm thick (P9000) wiring trunking with cover plates. Supply	m	9.0
3/2/97	Install	m	9.0
	POWER SKIRTING	H3	
	Supply and install aesthetic textured to hospital grey finish multifiskirt aluminum power skirting complete with all accessories including bends, elbows, end caps cover plates etc.	H3	
3/2/98	2 compartment multi-skirt trunking fixed to brick work with cover plates. Supply	m	36.0
3/2/99	Install	m	36.0
	FLOOR PEDESTAL	H3	
	Supply and install aesthetic textured to hospital grey finish floor pedestal aluminum power skirting complete with all accessories including cover plates etc.	H3	
3/2/100	Cluster outlet pedestal floor box comprising 2 X 230V, 16A, round 3-PIN & 2-PIN, 2 gang switched socket outlet normal power - , c/w white steel cover plate, suitable to accommodate SANS164-1 & SANS 164-2 outlets and 2 X RJ45 Data outlets Supply	m	26.0
3/2/101	Install	m	26.0
	SUNDRIES	H3	
	Blank covers c/w screws;	H3	
3/2/102	Blank steel cover plate (White) for 100 mm x 50 mm conduit box. Supply	No	5.0
3/2/103	Install	No	5.0
3/2/104	Blank steel cover plate (White) for 100 mm x 100 mm conduit box. Supply	No	5.0
3/2/105	Install	No	5.0
3/2/106	PVC cover for 60 mm round, 25 mm deep, for 25 mm Ø junction box. Supply	No	10.0
3/2/107	Install	No	10.0
	Drawwire:	H3	
3/2/108	Supply and install 2.0 mm Ø. drawwire in electronic cable wireways. Supply	m	150.0
3/2/109	Install	m	150.0
	SECTION 3: CABLING	H2	
	WIRING CONDUCTORS	H3	
	Supply, deliver and install PVC insulated Copper conductors in required colours, drawn into conduit and/or trucking:	H3	
	Supply, deliver and install PVC insulated Copper conductors in required colours, drawn into conduit and/or trucking:	H3	
3/2/110	2.5 mm <sup>2</sup> . Supply	m	5680.0
3/2/111	Install	m	5680.0
3/2/112	4.0 mm <sup>2</sup> . Supply	m	1000.0
3/2/113	Install	m	1000.0
	Supply, deliver and install bare Copper wire drawn into conduit (appropriate PVC insulated Cu. wire earthing shall be used in power skirting and/or trunking):	H3	
3/2/114	2.5 mm <sup>2</sup> . Supply	m	1900.0

3/2/115	Install	m	1900.0
	Uninstall conductors drawn into conduit and/or trunking (up to 3 conductors in parallel):	H3	
3/2/116	1.0 - 4.0 mm <sup>2</sup> . SUNDRIES	m	6200.0
	Termination of 1.0 - 4.0 mm <sup>2</sup> conductors with lugs/termination end.	H3	
3/2/117	Supply	No	40.0
3/2/118	Install	No	40.0
	CABLING 3rd Floor	H2	
3/2/119	2.5 mm <sup>2</sup> . Supply	m	5610.0
3/2/120	Install	m	5610.0
3/2/121	4.0 mm <sup>2</sup> . Supply	m	700.0
3/2/122	Install	m	700.0
	Supply, deliver and install bare Copper wire drawn into conduit (appropriate PVC insulated Cu. wire earthing shall be used in power skirting and/or trunking):	H3	
3/2/123	2.5 mm <sup>2</sup> . Supply	m	2870.0
3/2/124	Install	m	2870.0
	Uninstall conductors drawn into conduit and/or trunking (up to 3 conductors in parallel):	H3	
3/2/125	1.0 - 4.0 mm <sup>2</sup> . SUNDRIES	m	6200.0
	Termination of 1.0 - 4.0 mm <sup>2</sup> conductors with lugs/termination end. Supply	H3	
3/2/126	Supply	No	50.0
3/2/127	Install	No	50.0
	SECTION 4: APPLIANCES	H2	
	SOCKETS OUTLETS	H3	
	Supply, deliver and install flush mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates.	H3	
	250 V, 16 A, standard 3-pin flush mounted, single switched socket outlet c/w steel cover plate (white)		
3/2/128	as per SANS 164-1. Supply	No	16.0
3/2/129	Install	No	16.0
	250 V, 16 A, standard 3-pin flush mounted, double switched socket outlet c/w steel cover plate (white)		
3/2/130	as per SANS 164-1. Supply	No	1.0
3/2/131	Install	No	1.0
	250 V, 16 A, combination flush mounted, 3 gang switched socket outlet with 1 x standard round 3-pin, 1 x 3 small round pin ZA socket complete with steel cover plate (white) & 1x shaved earth suitable to accommodate SANS 164-1 & SANS 164-2 combination socket outlets as per SANS 10142-1 (2017) requirements. Supply	No	20.0
3/2/132	Install	No	20.0
	220 V, 16 A, standard 3 pin single switched socket outlet (White) in wall box or floor box conduit system.		
3/2/134	Supply	No	34.0
3/2/135	Install	No	34.0
	220 V, 16 A, standard 3 pin shaved earth pin (red) for wall box or floor box conduit system UPS circuits.		
3/2/136	Supply	No	34.0
3/2/137	Install	No	34.0

3/2/138	250 V, 16 A, combination flush mounted floor box, 2 gang switched socket outlet with 2 x standard round 3-pin & 2 x 3 small round pin ZA socket complete with steel cover plate (white), 2 x horizontally shaved earth, standard round 3 pin 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated), Data Point (RJ 45) & Tel point (RJ11) suitable to accommodate SANS 164-1 & SANS 164-2 combination socket outlets as per SANS 10142-1 (2017) requirements. Supply	No	1.0
3/2/139	Install	No	1.0
3/2/140	250 V, 16 A, combination flush mounted in wall box or floor box conduit system, 2 gang switched socket outlet with 2 x standard round 3-pin & 2 x 3 small round pin ZA socket complete with steel cover plate (white), 2 x horizontally shaved earth, standard round 3 pin 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated), Data Point (RJ 45) & Tel point (RJ11) suitable to accommodate SANS 164-1 & SANS 164-2 combination socket outlets as per SANS 10142-1 (2017) requirements. Supply	No	34.0
3/2/141	Install	No	34.0
	Supply, deliver and install surface mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates and surface mounted outlet box.	H3	
3/2/142	250 V, 16 A, standard 3-pin, surface mount single switched socket outlet c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	1.0
3/2/143	Install	No	1.0
3/2/144	250 V, 5 A, standard 3-pin socket module unswitched c/w steel cover plate (white) and with with 60mm PVC round surface mounted box. NB: Socket shall be used for plugging specific light fittings and shall be mounted on roof trusses or slab. Supply	No	1.0
3/2/145	Install	No	1.0
	Supply, deliver and install surface mounted socket outlets enclosed in IP54 weather box. The rate shall include all other accessories that shall make the installation operational including cover plates and weather box.	H3	
3/2/146	250 V, 16 A, standard 3-pin socket surface mount unswitched module c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	2.0
3/2/147	Install	No	2.0
	Supply, deliver and install wire trunking mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates where applicable.	H3	
3/2/148	250 V, 5 A, standard 3-pin wiring trunking socket module unswitched c/w steel cover plate (white). NB: Socket shall be used for plugging specific light fittings and shall be mounted on wire trunking. Supply	H3	110.0
3/2/149	Install	No	110.0

	Supply, deliver and install power skirting mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates.	H3		
3/2/150	250 V, 16 A, standard round 3-pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (white) suitable to accommodate SANS 164-1 socket outlet as per SANS 10142-1 (2017) requirements. Supply	No	11.0	
3/2/151	Install	No	11.0	
3/2/152	250 V, 16 A, small round 3-pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (white) suitable to accommodate SANS 164-2 socket outlets as per SANS 10142-1 (2017) requirements. Supply	No	2.0	
3/2/153	Install	No	2.0	
3/2/154	250 V, 16 A, horizontally shaved earth, standard round 3 pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated) suitable to accommodate SANS 164-1 socket outlet as per SANS 10142-1 (2017) requirements. Supply	No	19.0	
3/2/155	Install	No	19.0	
	ISOLATORS	H3		
	Supply, deliver and install flush mounted isolators. The rate shall include all other accessories that shall make the installation operational including cover plates.	H3		
3/2/156	250 V, 20 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	4.0	
3/2/157	Install	No	4.0	
3/2/158	250 V, 32 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	1.0	
3/2/159	Install	No	1.0	
3/2/160	250 V, 60 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	1.0	
3/2/161	Install	No	1.0	
3/2/162	380 V, 32 A, four pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	1.0	
3/2/163	Install	No	1.0	
3/2/164	380 V, 50 A, four pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	3.0	
3/2/165	Install	No	3.0	
	Supply, deliver and install surface isolators enclosed in IP54 weather box. The rate shall include all other accessories that shall make the installation operational including cover plates and weather box.	H3		
3/2/166	250 V, 20 A, double pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	14.0	
3/2/167	Install	No	14.0	
3/2/168	250 V, 32 A, double pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	1.0	
3/2/169	Install	No	1.0	
	MECHANICAL SWITCHES	H3		
	Supply, deliver and install light switch complete with steel cover plate and all accessories:	H3		
3/2/170	16 A one lever, 1-way flush mount switch complete with cover plate. Supply	No	13.0	

3/2/171	Install	No	13.0
3/2/172	16 A two lever, 1-way & 2-way flush mount switch complete with cover plate. Supply	No	2.0
3/2/173	Install	No	2.0
3/2/174	16 A One lever, 2-way flush mount DC 12/24V Sensitive touch swithc panel LED light dimmer controller complete with cover plate. Supply	No	1.0
3/2/175	Install	No	1.0
	ELECTRONIC SWITCHES	H3	
	Supply, deliver and install electronic switches complete with all accessories and as mounted:	H3	
3/2/176	20 A photocell installed in outdoor bulkhead light fitting with clear disffuser and IP65. Supply	No	1.0
3/2/177	Install	No	1.0
	250V, 15 Ampere 2-wire dual technology 360 degree occupancy sensor ultrasonic and passive infrared ceiling sensor of ~ 50 mm <sup>2</sup> coverage, occupancy delay time of 6-15 minutes c/w power supply unit and interconnections: Supply	No	12.0
3/2/178	Install	No	12.0
3/2/179	Uninstall switches irrespective of type and store safely.	H3	
3/2/180	All types.	No	1.0
	Connect fixed equipment (including 1m kopex spraque and connector).	H3	
3/2/181	3-phase plus earth.	No	1.0
3/2/182	Single phase plus earth wire.	No	3.0
	SUNDRIES	H3	
3/2/183	Blank steel cover plate (White) for 100 mm x 50 mm conduit box. Supply	No	1.0
3/2/184	Install	No	1.0
3/2/185	Blank steel cover plate (White) for 100 mm x 100 mm conduit box. Supply	No	5.0
3/2/186	Install	No	5.0
	Supply and install engraved labels on each light switch, SSO and isolator face plate, glued and screwed.	H3	
3/2/187	Supply	No	30.0
3/2/188	Install	No	30.0
	APPLIANCES 3rd Floor	H2	
3/2/189	250 V, 16 A, standard 3-pin flush mounted, single switched socket outlet c/w steel cover plate (white) as per SANS 164-1. Supply	No	17.0
3/2/190	Install	No	17.0
	250 V, 16 A, standard 3-pin flush mounted, double switched socket outlet c/w steel cover plate (white) as per SANS 164-1. Supply	No	1.0
3/2/191	Install	No	1.0
3/2/192	250 V, 16 A, horizontally shaved earth, standard round 3 pin for flush mounted 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated) suitable to accommodate SANS 164-1 socket outlet as per SANS 10142-1 (2017) requirements. Supply	No	2.0
3/2/193	Install	No	2.0
	220 V, 16 A, standard 3 pin single switched socket outlet (White) in wall box or floor box conduit system.	No	26.0
3/2/195	Supply	No	26.0
3/2/196	Install	No	26.0
	220 V, 16 A, standard 3 pin shaved earth pin (red) for wall box or floor box conduit system UPS circuits.	No	26.0
3/2/197	Supply	No	26.0
3/2/198	Install	No	26.0

3/2/199 3/2/200	250 V, 16 A, combination flush mounted, 3 gang switched socket outlet with 1 x standard round 3-pin, 1 x 3 small round pin ZA socket complete with steel cover plate (white) & 1x shaved earth suitable to accommodate SANS 164-1 & SANS 164-2 combination socket outlets as per SANS 10142-1 (2017) requirements. Supply Install	No No	12.0 12.0		
3/2/201 3/2/202	250 V, 16 A, combination flush mounted in wall box or floor box conduit system, 2 gang switched socket outlet with 2 x standard round 3-pin & 2 x 3 small round pin ZA socket complete with steel cover plate (white), 2 x horizontally shaved earth, standard round 3 pin 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated), Data Point (RJ 45) & Tel point (RJ11) suitable to accommodate SANS 164-1 & SANS 164-2 combination socket outlets as per SANS 10142-1 (2017) requirements. Supply Install	No No	26.0 26.0		
	Supply, deliver and install surface mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates and surface mounted outlet box.	H3			
3/2/203 3/2/204	250 V, 16 A, standard 3-pin, surface mount single switched socket outlet c/w steel cover plate (white) and with surface mounted outlet box. Supply Install	No No	1.0 1.0		
3/2/205 3/2/206	250 V, 5 A, standard 3-pin socket module unswitched c/w steel cover plate (white) and with with 60mm PVC round surface mounted box. NB: Socket shall be used for plugging specific light fittings and shall be mounted on roof trusses or slab. Supply Install	No No	1.0 1.0		
	Supply, deliver and install surface mounted socket outlets enclosed in IP54 weather box. The rate shall include all other accessories that shall make the installation operational including cover plates and weather box.	H3			
3/2/207 3/2/208	250 V, 16 A, standard 3-pin socket surface mount unswitched module c/w steel cover plate (white) and with surface mounted outlet box. Supply Install	No No	2.0 2.0		
	Supply, deliver and install wire trunking mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates where applicable.	H3			
3/2/209 3/2/210	250 V, 5 A, standard 3-pin wiring trunking socket module unswitched c/w steel cover plate (white). NB: Socket shall be used for plugging specific light fittings and shall be mounted on wire trunking. Supply Install	No No	115.0 115.0		
	Supply, deliver and install power skirting mounted socket outlets. The rate shall include all other accessories that shall make the installation operational including cover plates.	H3			

3/2/211	250 V, 16 A, standard round 3-pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (white) suitable to accommodate SANS 164-1 socket outlet as per SANS 10142-1 (2017) requirements. Supply	No	19.0
3/2/212	Install	No	19.0
3/2/213	250 V, 16 A, small round 3-pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (white) suitable to accommodate SANS 164-2 socket outlets as per SANS 10142-1 (2017) requirements. Supply	No	2.0
3/2/214	Install	No	2.0
3/2/215	250 V, 16 A, horizontally shaved earth, standard round 3 pin for power skirting mounting 1 gang switched socket outlet c/w steel cover plate (Red - Dedicated) suitable to accommodate SANS 164-1 socket outlet as per SANS 10142-1 (2017) requirements. Supply	No	22.0
3/2/216	Install	No	22.0
	ISOLATORS	H3	
	Supply, deliver and install flush mounted isolators. The rate shall include all other accessories that shall make the installation operational including cover plates.	H3	
3/2/217	250 V, 20 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	4.0
3/2/218	Install	No	4.0
3/2/219	250 V, 32 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	1.0
3/2/220	Install	No	1.0
3/2/221	250 V, 60 A, double pole isolator, flush mounted, c/w steel cover plate (white). Supply	No	1.0
3/2/222	Install	No	1.0
	Supply, deliver and install surface isolators enclosed in IP54 weather box. The rate shall include all other accessories that shall make the installation operational including cover plates and weather box.	H3	
3/2/223	250 V, 20 A, double pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	10.0
3/2/224	Install	No	10.0
3/2/225	250 V, 32 A, double pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	1.0
3/2/226	Install	No	1.0
3/2/227	380 V, 32 A, four pole isolator, surface mounted c/w steel cover plate (white) and with surface mounted outlet box. Supply	No	1.0
3/2/228	Install	No	1.0
	MECHANICAL SWITCHES	H3	
	Supply, deliver and install light switch complete with steel cover plate and all accessories:	H3	
3/2/229	16 A one lever, 1-way flush mount switch complete with cover plate. Supply	No	20.0
3/2/230	Install	No	20.0
3/2/231	16 A two lever, 1-way & 2-way flush mount switch complete with cover plate. Supply	No	2.0
3/2/232	Install	No	2.0
	ELECTRONIC SWITCHES	H3	
	Supply, deliver and install electronic switches complete with all accessories and as mounted:	H3	

3/2/233	20 A photocell installed in outdoor bulkhead light fitting with clear diffuser and IP65. Supply	No	1.0		
3/2/234	Install	No	1.0		
3/2/235	250V, 15 Ampere 2-wire dual technology 360 degree occupancy sensor ultrasonic and passive infrared ceiling sensor of ~ 50 mm <sup>2</sup> coverage, occupancy delay time of 6-15 minutes c/w power supply unit and interconnections: Supply	No	18.0		
3/2/236	Install	No	18.0		
3/2/237	Uninstall switches irrespective of type and store safely. All types.	H3 SUM	1.0		
3/2/238	Connect fixed equipment (including 1m kopex sprague and connector). 3-phase plus earth.	H3 No	1.0		
3/2/239	Single phase plus earth wire. SUNDRIES	No H3	3.0		
3/2/240	Blank steel cover plate (White) for 100 mm x 50 mm conduit box. Supply	No	1.0		
3/2/241	Install	No	1.0		
3/2/242	Blank steel cover plate (White) for 100 mm x 100 mm conduit box. Supply	No	5.0		
3/2/243	Install	No	5.0		
3/2/244	Supply and install engraved labels on each light switch, SSO and isolator face plate, glued and screwed. Supply	No	30.0		
3/2/245	Install SECTION 4: ELECTRICAL EQUIPMENT Uninstall equipment listed below irrespective of type and store safely.	No H2 H3	30.0		
3/2/246	2400 W single phase hydroboil. Supply	No	1.0		
3/2/247	Install ELECTRICAL EQUIPMENT 3rd Floor	No H2	1.0		
3/2/248	2400 W single phase hydroboil. Supply	No	1.0		
3/2/249	Install SECTION 6: LIGHT FIXTURES LUMINAIRES Supply, delivery and installation of light fittings complete with lamps, electronic control gear and all accessories:	No No H2 H3 H3	1.0		
3/2/250	Type A1 SANS approved indoor recessed mount slim panel LED luminaire. 600mm long x 600mm wide LED panel IP20 luminaire c/w 40W cool white LED lamp, aluminium frame, polycarbonate difusser, LED driver & 3m cable, white. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical Installations. Supply	No	60.0		
3/2/251	Install	No	60.0		
3/2/252	Type C SANS approved indoor recessed mount slim round recessed downlight c/w 3W cool white LED lamp polycarbonate body and difusser, 120 deg. beam angle & LED driver dimmable downlight. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical Installations. Supply	No	17.0		
3/2/253	Install	No	17.0		

	Type D SANS approved indoor recessed mount slim round recessed downlight c/w 10W cool white LED lamp polycarbonate body and difusser, 120 deg. beam angle & LED downlight. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical Installations. Supply	No	28.0
3/2/254		No	28.0
3/2/255	Install	No	28.0
	Type D1 SANS approved indoor recessed mount slim round recessed downlight c/w 6W cool white LED lamp polycarbonate body and difusser, 120 deg. beam angle & LED downlight. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical Installations. Supply	No	10.0
3/2/256		No	10.0
3/2/257	Install	No	10.0
	Type F-Eme SANS approved bulkhead luminaire. The luminaire shall consist of a high- pressure die cast (white outside and white inside) Aluminium base, and trim ring with an impact resistant, Emergency mode, UV stabilised, translucent polycarbonate diffuser and shall be designed to operate a 2x9w E27 LED lamps or 20w LED and have a minimum efficacy of 105 lm/w and IP20 rated with a 5-year warranty as per Standard Quality Specification for General Electrical Installations. Supply	No	3.0
3/2/258		No	3.0
3/2/259	Install	No	3.0
3/2/260	Type G Same as Type F But with Red Diffuser Supply	No	1.0
3/2/261	Install	No	1.0
	EMERGENCY LUMINAIRES	H3	
	Supply, delivery and installation of light fittings complete with lamps, electronic control gear and all accessories:	H3	
	Type EMERG SANS Approved Non-maintained surface mount emergency illumination light c/w 2X18W flourescent lamps, acrylic prismatic diffuser & battery pack & CCG. Supply	No	5.0
3/2/262		No	5.0
3/2/263	Install	No	5.0
	Uninstall light fittings irrespective of type and store safely.	H3	
3/2/264	All types.	SUM	1.0
	SUNDRIES	H3	
	Engraved labels on each light switch face plate, glued and screwed. Supply	SUM	1.0
3/2/265		SUM	1.0
3/2/266	Install	SUM	1.0
	LIGHT FIXTURES 3rd Floor	H2	
	Type A1 SANS approved indoor recessed mount slim panel LED luminaire.600mm long x 600mm wide LED panel IP20 luminaire c/w 40W cool white LED lamp, aluminium frame, polycarbonate difusser, LED driver & 3m cabtyre, white. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical Installations MoPW. Supply	No	52.0
3/2/267		No	52.0
3/2/268	Install	No	52.0

	Type D SANS approved indoor recessed mount slim round recessed downlight c/w 10W cool white LED lamp polycarbonate body and difusser, 120 deg. beam angle & LED downlight. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical		
3/2/269	Installations. Supply	No	26.0
3/2/270	Install	No	26.0
	Type D1 SANS approved indoor recessed mount slim round recessed downlight c/w 6W cool white LED lamp polycarbonate body and difusser, 120 deg. beam angle & LED downlight. The luminaire shall be designed to have a minimum efficacy output of 105 lm/w with a 5-year warranty as per the Standard Quality Specification for General Electrical		
3/2/271	Installations. Supply	No	17.0
3/2/272	Install	No	17.0
	Type F1 SANS approved outdoor bulkhead luminaire. The luminaire shall consist of a high- pressure die cast (black outside and white inside) Aluminium base, and trim ring with an impact resistant, UV stabilised, translucent polycarbonate diffuser and shall be designed to operate a 2x9w E27 LED lamps or 20w LED and have a minimum efficacy of 105 lm/w and IP65 rated with a 5-year warranty as per Standard Quality Specification for General Electrical		
3/2/273	Installations. Supply	No	2.0
3/2/274	Install	No	2.0
	Type F-Eme SANS approved bulkhead luminaire. The luminaire shall consist of a high- pressure die cast (white outside and white inside) Aluminium base, and trim ring with an impact resistant, Emergency mode, UV stabilised, translucent polycarbonate diffuser and shall be designed to operate a 2x9w E27 LED lamps or 20w LED and have a minimum efficacy of 105 lm/w and IP20 rated with a 5-year warranty as per Standard Quality Specification for		
3/2/275	General Electrical Installations. Supply	No	4.0
3/2/276	Install	No	4.0
3/2/277	Type G Same as Type F But with Red Diffuser Supply	No	2.0
3/2/278	Install	No	2.0
	EMERGENCY LUMINAIRES	H3	
	Supply, delivery and installation of light fittings complete with lamps, electronic control gear and all accessories:	H3	
	Type EMERG SANS Approved Non-maintained surface mount emergency illumination light c/w 2X18W flourescent lamps, acrylic prismatic diffuser & battery pack & CCG. Supply	No	5.0
3/2/279		No	5.0
3/2/280	Install	No	5.0
	Uninstall light fittings irrespective of type and store safely.	H3	
3/2/281	All types.	SUM	1.0
	SUNDRIES	H3	
	Engraved labels on each light switch face plate, glued and screwed. Supply	SUM	1.0
3/2/282		SUM	1.0
3/2/283	Install	SUM	1.0
	SECTION 7: TESTING & COMMISSIONING	H2	

	TEST, COMMISSION AND CERTIFICATE OF COMPLIANCE	H3		
	Test, commission and issue a COC for the complete installation for all circuits including earth conductors, switchgear, auxiliary equipment, fixed equipment, appliances, etc., in accordance with the SANS 0142-1 (2017) and OHS Act 1993 requirements per Distribution Board:	H3		
3/2/284	60 ways and above mains distribution board.	No	1.0	
	TESTING & COMMISSIONING 3rd Floor	H2		
3/2/285	16 to 24 ways mains distribution board.	No	1.0	
3/2/286	60 ways and above mains distribution board.	No	1.0	

	<p><b>SECTION 3</b>  <b>BILL NO. 3</b>  <b>SECURITY LIGHTING</b>  <b>LUMINAIRES</b></p> <p>All luminaires to be supplied complete with control gear.</p> <p>Supply, install and connect up die cast aluminium body with tempered glass LED floodlight Luminaire equipped with motion sensor. Total power rating of LEDs to be 30W with builtin driver. Adjustable sensor for Lux, time and sensitivity of 25 metre range throughput. IP rating of IP65. Supply</p>	<p><b>H1</b>  <b>H1</b>  <b>H1</b>  <b>H3</b></p> <p>H3</p> <p>No</p> <p>No</p>	<p>4.0</p> <p>4.0</p>	
3/3/287	Install			
3/3/288				

<b>SECTION 3</b>		<b>H1</b>	
<b>BILL NO. 4</b>		<b>H1</b>	
<b>EARTHING AND LIGHTNING PROTECTION</b>		<b>H1</b>	
	Complete Supply and installation: Earthing and lightning protection System Installation.		
	Rates shall include supply, delivery, storage, installation. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).		
	Note: Some items measured hereunder are additional to items measured in schedule of materials installed by Electrical Subcontractor and therefore shall be thoroughly coordinated and checked.		
	Note: All material shall be SABS approved.		
	<b>GENERAL EARTHING</b>	H3	
	35 sq. mm, bare stranded copper earth conductor connected to main earth terminal. Supply	m	20.0
3/4/289	Install	m	20.0
3/4/290	35 sq. mm compression connectors. Supply	No	4.0
3/4/291	Install	No	4.0
3/4/292	Copper covered steel earth rods class 2, 1.5 m long, driven full length into ground complete with ground buried clamps. Supply	No	30.0
3/4/293	Install	No	30.0
3/4/294	Connections between earth rods and earth conductor. Supply	No	4.0
3/4/295	Install	No	4.0
3/4/296	Earth rod inspection box. Supply	No	4.0
3/4/297	Install	No	4.0
3/4/298	<b>BONDING</b>	H3	
	Bonding of roof gutter to rainwater downpipe. Supply	No	5.0
3/4/299	Install	No	5.0
3/4/300	Bonding of rainwater downpipes to earth conductor. Supply	No	5.0
3/4/301	Install	No	5.0
3/4/302	<b>SECTION 2: LIGHTNING PROTECTION</b>	H2	
	As specified in the Technical Specification, having verified the site conditions, supply and install lightning protection system using the equipment listed below. NOTE 1: Work to be undertaken by specialist contractor recommended by Principal Agent/Agent/Client.	H3	
	<b>AIR TERMINALS</b>	H3	
	3 m long copper air terminals complete base plates and fixing bolts for lightning protection to be installed at Engineer's instruction. Supply	No	2.0
3/4/303	Install	No	2.0
3/4/304	<b>PERIMETER STRIP</b>	H3	
	Continuous 35 square mm round solid zinc coated copper strip secured to roof of building, including all clamps, joints and fixing accessories. Supply	m	150.0
3/4/305	Install	m	150.0
3/4/306	<b>CONNECTIONS TO ROOF STRUCTURE</b>	H3	
	Connection strips between perimeter bonding strip and roof structure. Each connecting piece consisting of 1,0 m of ding all fixing accessories. Supply	No	10.0
3/4/307	Install	No	10.0
3/4/308			

	DOWN CONDUCTORS	H3		
	Continuous 35 square mm round zinc coated copper strip 12 m long connected to perimeter bonding strip and to earth electrode, fixed to outside block wall, including all fixing accessories.			
3/4/309	Supply	No	16.0	
3/4/310	Install	No	16.0	
	EARTH ELECTRODES	H3		
	Tapered Copper covered steel earth rods (Class 2), 1.5 m long installed as follows:	H3		
3/4/311	Driven into ground to full length. Supply	No	4.0	
3/4/312	Install	No	4.0	
	INSPECTION PIT	H3		
3/4/313	Earth rod inspection box. Supply	No	4.0	
3/4/314	Install	No	4.0	
	SECTION 3: TESTING AND COMMISSIONING	H2		
	Work to involve; Checking, measuring and confirming; - Test boxes and test points - Depth of earth rods - Class of earth rods NB: Installation and remedial work related to the problems stated above shall ONLY be executed upon engineer's instruction. Inspect complete installation for the new section of the building and include in consolidated report with pictures;			
3/4/315		SUM	1.0	

	<b>SECTION 3</b>	<b>H1</b>		
	<b>BILL NO. 5</b>	<b>H1</b>		
	<b>IP Based Access Control System</b>	<b>H1</b>		
	<b>SECTION 1: CABLING</b>	<b>H2</b>		
	Rates shall include supply, delivery, storage, installation, accessories. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).			
	Note: Some items measured hereunder maybe additional to items measured in schedule of materials installed by Electrical Subcontractor and therefore shall be thoroughly coordinated and checked.			
	Note: All material shall be SABS approved.			
	CABLE	H3		
	The exact length of cable to be verified by the tenderer, and reported back to the Engineer. The tenderer accounts for the correctness of the distance he or she has given in here STP cable.	H3		
3/5/316	CAT-6 cable Supply	m	150.0	
3/5/317	Install	m	150.0	
	4-twisted pairs Cat6e Network Cable, RS 485 Maylar.			
3/5/318	Supply	m	100.0	
3/5/319	Install	m	100.0	
	CONNECTORS/PLUGS	H3		
3/5/320	RJ45 cat5e connector. Supply	No	50.0	
3/5/321	Install	No	50.0	
3/5/322	RJ45 cate6 connector. Supply	No	2.0	
3/5/323	Install	No	2.0	
	<b>SECTION 2: ACCESS CONTROL SYSTEM SOFTWARE, EQUIPMENT AND APPLIANCES</b>	H2		
	Rates shall include supply, delivery, installation and all accessories such as mounting screws etc.			
	Note: All material shall be SABS approved.			
	BIOMETRIC READER	H3		
	Fingerprint, smartcard, PIN mixed authentication reader for Entry- High quality optical sensor resolution, durable - IP65- Built-in 125kHz RFID proximity reader- Built-in web and database server- Built-in video and still camera allowing video surveillance and direct BCN output to DVR- 500 ppi Resolution- 50,000 fingerprints/second in 1:N mode- < 1 second authentication time- Multi-lingual support, English voice greeting minimum for successful attempt or for unsuccessful attempt or similar voice greetings. - Backlit LCD display - Windows XP/Vista/windows 7/8/10/mobile, MAC OS, Android, iPhone OS, Linux PC - LAN/WAN, Ethernet (10/100 Base T), GSM/GPRS, USB 0 2.0 (emergency), TCP-IP- RS-232/RS-485 I/O Interface- SSL- Instant notification via SMS or email upon user authentication- Up to 1000 users	H3		
3/5/324	Type ACS1 Supply	No	4.0	
3/5/325	Install	No	4.0	
	EXIT AND EMERGENCY NO TOUCH BUTTON	H3		

	High quality material: Touch exit release button switch made of acrylic panel and PC flame retardant material, not easy to damage, durable to use. Touch sensor design: Touch exit button door, when the finger touches it, it outputs the on or off signal; when the finger moves away, it indicates that it needs to be touched in standby mode. LED light: It is indicated with dual-color LED light, advanced technology and technology, smooth surface with glass, a beauty design with high fashion. Output contact: divided into three NO / NC / COM contacts, the operation is very simple. This door touch trigger switch helps improve home security performance. Wide Usage: Supports most scenarios of commercial institutions, offices, factories, residential areas, etc Our touch sensor door access control system is widely used for doors, exits, gates and automatic controls. Specification: Item Type: Access Control Switch Panel Material: Acrylic Panel	H3	
3/5/326	Type ACS2 Supply	No	4.0
3/5/327	Install DOOR RELEASE	No H3	4.0
3/5/328	Breakglass Emergency Door Release button Supply	No	4.0
3/5/329	Install	No	4.0
3/5/330	Door Lock Release button Supply	No	4.0
3/5/331	Install ELECTROMAGNETIC LOCK	No H3	4.0
	Double Door Magnetic Lock complete with bracket- Power Supply 230V AC Mains Single phase@50 Hz.- Back Up Battery 12V DC, 7 AH, Rechargeable, Maint Free.- 12V / 500mA ; 24V / 250mA (±5%) - Up to 545 kg x2 holding force- Hall Effect Contact : SPDT rated 2A at 24 VDC- Anti-Rust Surface Treatment : Blue Zinc Plating- Operating Temperature : 0~55° C ( 32~131° F)- Operating Humidity : 0~95% ( non condensing)	H3	
3/5/332	545 kg Force Supply	No	4.0
3/5/333	Install 230V AC electromagnetic Fire door holder complete supplied and installed.	No H3	4.0
3/5/334	50kg holding force Supply	No	4.0
3/5/335	Install PORT	No H3	4.0
3/5/336	RSC-232 converter Supply	No	4.0
3/5/337	Install DOOR CONTROLLER	No H3	4.0
	Networked IP enabled controller with simplified programming and navigation complete with 12/24 VDC battery, and power supply unit. Rate to include programmng and LIC. - 100% browser based - Support offline mode • Microprocessor – controlled, single channel loop detector • Power Supply: 24V AC/DC, +/- 10% • Power consumption: Max. 1.5 W • Operating temperature: -20°-+70° C • Humidity: Max. 95% • Loop inductivity: 25 - 800μH • Frequency range: 50 Hz • Sensitivity: 0.01% - 0.65% • Loop read length: Max. 250mt • Relay: 1 presence relay • Housing: Plastic housing • Protection: IP 65	H3	

3/5/338	Type L1 Supply	No	4.0
3/5/339	Install	No	4.0
	ENROLLMENT TERMINAL	H3	
	High-performance, maintenance-free optic fingerprint sensor with;- 500 dpi resolution- Windows XP/Vista/windows 7/8/10/mobile, MAC OS, Android, iPhone OS, Linux PC - High speed 1.1/2.0 USB interface	H3	
3/5/340	Type ACS2 Supply	No	1.0
3/5/341	Install	No	1.0
	PROXIMITY CARD	H3	
	Card types 5 (Normal user, Super user, Visitor, Contractor & Maint. - Card attributes 4 (Valid/ void, Trace, Custodian, & Escort) - Lanyard with printed logo/name/card case as per requirement - Front and Back side printed sticker as per requirement.	H3	
3/5/342	Card Type 5 Supply	No	100.0
3/5/343	Install	No	100.0
	ACCESS SOFTWARE	H3	
	Time access software with Access Control System	H3	
3/5/344	Windows/Apple/Linux/Android based Supply	No	1.0
3/5/345	Install	No	1.0
	PC link software with Access Control System	H3	
3/5/346	Windows/Apple/Linux/Android based Supply	No	1.0
3/5/347	Install	No	1.0
	ACCESS CONTROLLER	H3	
	High-performance, fully-configured server.- up to 10 door capacity- Automatic event archiving- System optimization - 16GB of RAM- 2 1GB network ports- Corei7 Quad 4.5GHz CPU- 1TB hard drive storage and 128GB flash drive backup storage	H3	
3/5/348	1U Rack Supply	No	1.0
3/5/349	Install	No	1.0
	MISCELLANEOUS	H3	
	Allowance for any items required for the operation of the complete system but not listed above INCLUDING masonry work. Attach complete list with tender to qualify your submission.	No	1.0
3/5/350	SECTION 3: TESTING AND COMMISSIONING	H2	
	SYSTEM CONFIGURATION AND SET UP	H3	
	Configuring and setting up access control system installation.	No	1.0
3/5/351	TESTING AND COMMISSIONING	H3	
	Device/cable labeling, commissioning and testing of the complete system installation	SUM	1.0
3/5/352			

	<b>SECTION 3</b>	<b>H1</b>	
	<b>BILL NO. 6</b>	<b>H1</b>	
	<b>CCTV Surveillance System</b>	<b>H1</b>	
	<b>SECTION 1: CABLING</b>	<b>H2</b>	
	Rates shall include supply, delivery, storage, installation, accessories. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).		
	Note: Some items measured hereunder maybe additional to items measured in schedule of materials installed by Electrical Subcontractor and therefore shall be thoroughly coordinated and checked.		
	Note: All material shall be SABS approved.		
	CABLE	H3	
	The exact length of cable to be verified by the tenderer, and reported back to the Engineer. The tenderer accounts for the correctness of the distance he or she has given in here STP cable.	H3	
	STP cable to connect remote cameras. Crimping charges for both ends of cable for 32 cameras are to be included.	H3	
3/6/353	CAT-6 cable Supply	m	150.0
3/6/354	Install	m	150.0
	Cable Patch cord for Cameras	H3	
3/6/355	CAT-6 cable Supply	m	8.0
3/6/356	Install	m	8.0
	Maylar cable	H3	
3/6/357	12 Core maylar cable 2.0mm Supply	m	50.0
3/6/358	Install	m	50.0
	I/O Box	H3	
3/6/359	For CAT-6 Supply	No	
3/6/360	Install	No	
	CONNECTORS/PLUGS	H3	
3/6/361	RJ45 cate6 connector. Supply	No	50.0
3/6/362	Install	No	50.0
	SECTION 2: CCTV SOFTWARE, EQUIPMENT AND APPLIANCES	H2	
	Rates shall include supply, delivery, installation and all accessories such as mounting screws etc.		
	Note: All material shall be SABS approved.		
	CAMERAS	H3	
	IP Indoor Fixed day/night camera as per technical specifications mentioned. Note: - Rate includes all the necessary accessories (brackets, stands etc.) reqd. for fixing cameras on wall/ceiling. Correct termination of the wire pairs per trigger output at the fire panel to be considered, in order to enable correct line monitoring from the voice evacuation system's side.	H3	
	Type CC1 2 MP AcuSense Fixed Dome Network Camera High quality imaging with 2 MP resolution Clear imaging against strong backlight due to 120 dB WDR technology Efficient H.265+ compression technology Focus on human and vehicle targets classification based on deep learning -S: audio and alarm interface available Water and dust resistant		
3/6/363	(IP67) and vandal resistant (IK10) Supply	No	5.0
3/6/364	Install	No	5.0
	VIDEO MANAGEMENT SOFTWARE	H3	

	Video Management Software for total connected cameras as per specifications mentioned. 1. Quote the rate of software without analytic feature. 2. Quoted rate includes the cost of client software for displaying video of cameras. Correct termination of the wire pairs per trigger output at the fire panel to be considered, in order to enable correct line monitoring from the voice evacuation system's side.	H3		
3/6/365	Windows/MAC/Apple/Linux/Android based Supply	No	0.0	
3/6/366	Install ANALYTICS SOFTWARE Analytics Software Cost per total connected cameras. ( Optional )	No H3 H3	0.0	
3/6/367	Windows/MAC/Apple/Linux/Android based Supply	No	0.0	
3/6/368	Install SWITCHES 16-port 10/100/1000 + 4-port Gigabit Layer-2 POE supported Smart Switch.	No H3 H3	0.0	
3/6/369	16-Port Supply	No	0.0	
3/6/370	Install 16-CN PoE 1U K SERIES ACU SENCE 4K NVR	No H3	0.0	
	High-performance, fully-configured rack mountable NVR media storage. Up to 16-ch IP camera inputs, plug & play with 16 Power-over-Ethernet (PoE) interfaces H.265+/H.265/H.264+/H.264 video formats Up to 2-ch@12 MP or 3-ch@8 MP or 6-ch@4 MP or 12-ch@1080p decoding capacity Up to 160 Mbps incoming bandwidth	H3		
3/6/371	1U Rack Supply	No	1.0	
3/6/372	Install HDD	No H3	1.0	
3/6/373	WD 8TB 3.5-inch Surveillance Hard Drive Supply	No	0.0	
3/6/374	Install Desktop CPU	No H3	0.0	
	CPU Intel® Core™ i7 CPU or equivalent alternative: AMD Ryzen 3700X or newer complete with latest operating system Windows/Linux/Mac.A CPU capable of 3.8 to ~ 4.5GHz clock speeds for optimal performance.Memory16 GB RAM and up.StorageSSD (solid state drive) or NVME drive for the main operating system.Separate 1TB 7200 RPM (or larger) HDD or SSD for database storage.GraphicsNVidia Geforce GTX or RTX series, specifically (2060, 2070, 2080 models or newer) for hardware encoding).AMD Vega 56, AMD Radeon RX 5500, AMD Radeon R9 580.NVidia Graphics.Faster recording times, with NVIDIA Gefore RTX cards with the Turing architecture or integrated graphics whenever possible.			
3/6/375	Supply	No	0.0	
3/6/376	Install MONITORS Ultra High Definition LED Smart Screen for Desktop	No H3 H3	0.0	

3/6/377	40 inch Supply	No	0.0
3/6/378	Install	No	0.0
	TRANSCEIVER	H3	
	1 Gb transceiver module 100% compatible for Enterasys 1000Base-SX MM 550M SFP. 550m with MMF, up to 1.25Gbps data-rate, 850nm short wavelength VCSEL Laser Transmitter with Duplex LC Connector Interface equivalent to Model: MGBIC-		
3/6/379	LC01. Supply	No	1.0
3/6/380	Install	No	1.0
	1 Gb 1000Base SX LC SFP Module for pole-mounting		
3/6/381	Supply	No	1.0
3/6/382	Install	No	1.0
	SECTION 3: TESTING AND COMMISSIONING	H2	
	SYSTEM CONFIGURATION AND SET UP	H3	
	Configuring and setting up CCTV camera system installation.		
3/6/383	TESTING AND COMMISSIONING	No	1.0
	Device/cable labeling, commissioning and testing of the complete system installation	H3	
3/6/384		SUM	1.0

	<p><b>SECTION 3</b></p> <p><b>BILL NO. 7</b></p> <p><b>Wi-fi, LAN IT and IP PBX Infrastructure</b></p> <p><b>SECTION 1: WIREWAYS AND CHANNELLING SYSTEM</b></p> <p>Complete Supply and Installation: Wi-fi and Local Area Network (LAN) IT and IP PBX Infrastructure.</p> <p>General statement on rates: Rates shall include supply, delivery, storage, installation. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).</p> <p>Note: Some items measured hereunder are additional to items measured in schedule of materials installed by Electrical Subcontractor and therefore shall be thoroughly coordinated and checked.</p> <p>Note: All material shall be SABS approved.</p> <p>RACK CABINETS</p> <p>The tenderer to ensure that racks are supplied complete and fully assembled, wired neatly with cable ties, all wires tagged with unique numbers/identifiers.</p> <p>20U height unit rack swing frame 600mm deep, complete, with : 1No. 2-way fan, 1No. depth reducer -power duct(s) equipped with sufficient mains outlets, -flat shelf(s), -blank panels, -brush panels and entries, -cage nut assemblies, -base blank plate, - cable and wire identifiers/markers. -mounting rails,</p>	<p>H1</p> <p>H1</p> <p>H1</p> <p>H2</p>		
3/7/385	Supply	No	0.0	
3/7/386	Install	No	0.0	
	<p>ACCESS POINT SUPPORT STRUCTURES</p> <p>All wireless access point supports to be supplied complete with poles &amp; cover plates, base plates where applicable etc.</p> <p>Supply &amp; install 100 mm top diameter hot dipped galvanised steel mast of mineral grey paint finish with overall length of 4 m for direct embedment in ground and complete with accessories including pole earthing and access cover as per specifications</p>	<p>H3</p> <p>H3</p> <p>H3</p>		
3/7/387	Supply	No	6.0	
3/7/388	Install	No	6.0	
	<p>SUNDRIES</p> <p>Supply and install 2.0 mm Ø. drawwire in electronic cable wireways.</p>	<p>H3</p> <p>m</p>		
3/7/389	Supply	m	100.0	
3/7/390	Install	m	100.0	
	<p><b>SECTION 2: CABLING</b></p> <p>Rates shall include supply, delivery, storage, installation, accessories. Installation to be in accordance with specifications, SANS standards for complete project up to the satisfaction of the Engineer(s).</p> <p>Note: Some items measured hereunder maybe additional to items measured in schedule of materials installed by Electrical Subcontractor and therefore shall be thoroughly coordinated and checked.</p> <p>Note: All material shall be SABS approved.</p> <p>CABLE</p> <p>The exact length of cable to be verified by the tenderer, and reported back to the Engineer. The tenderer accounts for the correctness of the distance he or she has given in here STP cable.</p>	<p>H2</p> <p>H3</p> <p>H3</p>		

	B5/C5 30cm Stacking Cable Network Cable, Copper Cable for compatibility with C5 Gigabit Ethernet		
3/7/391	Switch equivalent to Model: STK-CAB-SHORT Supply	No	100.0
3/7/392	Install	No	100.0
3/7/393	CAT-6 Cable. Supply	m	1600.0
3/7/394	Install	m	1600.0
3/7/395	SITC of CAT-6 IO Box. Supply	No	6.0
3/7/396	Install	No	6.0
3/7/397	ST unjacketed pigtails 1m. Supply	No	6.0
3/7/398	Install	No	6.0
3/7/399	ST midcouplers. Supply	No	6.0
3/7/400	Install	No	6.0
3/7/401	ST LC lead duplex. Supply	No	6.0
3/7/402	Install	No	6.0
3/7/403	LC-LC fibre patch lead. Supply	No	6.0
3/7/404	Install	No	6.0
	8 core multi-mode optical fiber cable. Crimping charges for both ends of cable to switches to be included. Supply	m	500.0
3/7/405	Install	m	500.0
	SECTION 3: IT EQUIPMENT AND APPLIANCES	H2	
	Rates shall include supply, delivery, installation and all accessories such as mounting screws etc.		
	Note: All material shall be SABS approved.		
	SOCKET OUTLETS AND CONNECTORS	H3	
	RJ11 for power skirting mounting c/w PVC coverplate (White). Supply	No	7.0
3/7/407	Install	No	7.0
	RJ45 for power skirting mounting c/w PVC coverplate (White). Supply	No	25.0
3/7/409	Install	No	25.0
	RJ45 for floor box (pedestal) mounting c/w PVC coverplate (White). Supply	No	56.0
3/7/411	Install	No	56.0
	RJ45 wall box outlets c/w PVC coverplate (White). Supply	No	17.0
3/7/413	Install	No	17.0
	RJ11+RJ45 Combo for power skirting mounting c/w PVC coverplate (White). Supply	No	10.0
3/7/415	Install	No	10.0
	RJ11+RJ45 Combo wall box outlet c/w PVC coverplate (White). Supply	No	3.0
3/7/417	Install	No	3.0
	RJ11 Cat6 connector. Supply	No	24.0
3/7/419	Install	No	24.0
	RJ45 cate6 connector. Supply	No	100.0
3/7/421	Install	No	100.0
	PATCH PANEL	H3	
	48 Port ST multimode fibre optic patch panel with 24 ports populated, 1U. Supply	No	2.0
3/7/423	Install	No	2.0
	Fibre patch panel ST. Supply	No	2.0
3/7/425	Install	No	2.0
	TRANSCEIVER	H3	
	1 Gb transceiver module 100% compatible for Enterasys 1000Base-SX MM 550M SFP. 550m with MMF, up to 1.25Gbps data-rate, 850nm short wavelength VCSEL Laser Transmitter with Duplex LC Connector Interface equivalent to Model: MGBIC-LC01. Supply	No	2.0
3/7/427	Install	No	2.0
	WIRELESS ACCESS POINTS	H3	

3/7/429	Dual Radio 11agn 2x2: 2 MIMO implementation for 11n throughput High performance enterprise class AP indoor access point equivalent to Model: WS-AP3705i. Supply	No			
3/7/430	Install WLAN CONTROLLER	No H3			
3/7/431	WLAN controller. Manages 16 Access Points, expandable to 48 with 16 AP capacity upgrade (WS-C20XCAPUP16). Requires Reg Domain Key. 1000Base-T (management) equivalent to Model: WS-C25	No			
3/7/432	Supply Install ACCESSORIES	No No H3			
3/7/433	V8 Regulatory Domain Key for Rest of World. Enables WLAN controller and access points with appropriate wireless settings for region., equivalent to Model: WS-CTLREG8P-ROW Supply	No			
3/7/434	Install	No			
3/7/435	Dedicated Class-I Communication Earthing Supply	No			
3/7/436	Install RACK-MOUNT UPS Uninteruble Power Supply unit complete with battery pack for rack mounting	No H3 H3			
3/7/437	Rack mount smart 2.5 kVA with LCD display UPS, 10-15 minutes run time battery back up. Supply	No			
3/7/438	Install SECTION 4: TESTING AND COMMISSIONING SYSTEM CONFIGURATION AND SET UP	No H2 H3			
3/7/439	Configuring and setting up IT instrastructure and Wi-Fi installation.	No			
3/7/440	POST INSTALLATION TESTING AND COMMISSIONING Device/cable labeling, commissioning and testing of the complete system installation	H3 SUM			

**ELECTRICAL INSTALLATIONS SUMMARY**

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<b>SECTION 4</b>		<b>H1</b>	
<b>BILL NO. 2</b>		<b>H1</b>	
<b>HVAC Installations</b>		<b>H1</b>	
<b>Split Units</b>		<b>H2</b>	
	Supply and install local air conditioning DX Inverter split systems comprising indoor and outdoor units, wired controllers, associated refrigerant piping, controls, electrical power supply, structural support to ensure a vibration-free unit operation, and ancillaries, all as described in specification and equipment schedules. Including electrical connection to isolator(By others) within 1500mm	H3	
	AC1 Mid Wall Split Unit - 9000BTU	EI	
4/1/1	Install	No	1.0
4/1/2	Supply	No	1.0
	AC2 Mid Wall Split Unit - with drip tray 12000BTU	EI	
4/1/3	Install	No	4.0
4/1/4	Supply	No	4.0
	AC3 Mid Wall Split Unit - 18000BTU	EI	
4/1/5	Install	No	1.0
4/1/6	Supply	No	1.0
	AC2 Mid Wall Split Unit - 24000BTU	EI	
4/1/7	Install	No	1.0
4/1/8	Supply	No	1.0
	CU1 Cassette Split Unit - 9000BTU	EI	
4/1/9	Install	No	7.0
4/1/10	Supply	No	7.0
	CU2 Cassette Split Unit - 12000BTU	EI	
4/1/11	Install	No	1.0
4/1/12	Supply	No	1.0
	CU3 Cassette Split Unit - 18000BTU	EI	
4/1/13	Install	No	10.0
4/1/14	Supply	No	10.0
	CU4 Cassette Split Unit - 24000BTU	EI	
4/1/15	Install	No	1.0
4/1/16	Supply	No	1.0
	Supply and install condensate drainage system complete with all pipework, fittings, accessories, rodding points all as described in specification	EI	
4/1/17	Install	No	2.0
4/1/18	Supply	No	2.0
	Supply and install condensate drainage dry traps complete with all fixings and accessories as described in specification	EI	
4/1/19	Install	No	2.0
4/1/20	Supply	No	2.0
	Builders work and penetrations related to AC refrigerant- and condensate piping installations.	EI	
4/1/21	Install	No	2.0
4/1/22	Supply	No	2.0
	Fans	H2	
	Fans Supply and install axial flow fans, as specified, complete with mounting brackets, flexible connections, contactor to switch of fresh air system on signal from the fire panel(by others) and manual stop/start controls	H3	
	EA1 Extraction Fan 310L/s @ 150PA	EI	
4/1/23	Install	No	1.0
4/1/24	Supply	No	1.0
	EA2 Extraction Fan 651L/s @ 150Pa	EI	
4/1/25	Install	No	1.0

4/1/26	Supply	No	1.0	
	FA1 Supply Fan 800L/s @ 270Pa	EI		
4/1/27	Install	No	1.0	
4/1/28	Supply	No	1.0	
	FA2 Supply Fan 475L/s @ 270Pa	EI		
4/1/29	Install	No	1.0	
4/1/30	Supply	No	1.0	
	WF1 Window/wall Extract Fan 461L/s @ 300Pa	EI		
4/1/31	Install	No	1.0	
4/1/32	Supply	No	1.0	
	Sound Attenuators	H2		
	Supply and install cylinder sound attenuators as specified, complete with mounting brackets & duct connections.	H3		
	ATT1 Attenuater with POD 400 mmø x800	EI		
4/1/33	Install	No	2.0	
4/1/34	Supply	No	2.0	
	ATT2 Attenuater with POD 315 mmø x600	EI		
4/1/35	Install	No	2.0	
4/1/36	Supply	No	2.0	
	ATT3 Attenuater with POD 400 mmø x800	EI		
4/1/37	Install	No	2.0	
4/1/38	Supply	No	2.0	
	ATT4 Attenuater with POD 400 mmø x800	EI		
4/1/39	Install	No	2.0	
4/1/40	Supply	No	2.0	
	Terminals, Grilles & Louvres	H2		
	Supply and install grilles, diffusers and louvres complete with spigot box & balancing damper where required and specified, suitable for mounting as per the design drawings, all as per the specification and equipment schedules	H3		
	Extract Air Disc Valves EV1 Round diffuser disc valve - Extraction 200 mmø	EI		
4/1/41	Install	No	11.0	
4/1/42	Supply	No	11.0	
	Constant Air Volume Supply Air Diffusers as specified			
	SA1 - Supply 150 mmø	EI		
4/1/43	Install	No	11.0	
4/1/44	Supply	No	11.0	
	SA2 - Supply 200 mmø	EI		
4/1/45	Install	No	2.0	
4/1/46	Supply	No	2.0	
	Adjustable damper BD-01 Balancing Damper 150 mmø	EI		
4/1/47	Install	No	4.0	
4/1/48	Supply	No	4.0	
	BD-02 Balancing Damper 200 mmø	EI		
4/1/49	Install	No	18.0	
4/1/50	Supply	No	18.0	
	BD-03 Balancing Damper 300 mmø	EI		
4/1/51	Install	No	2.0	
4/1/52	Supply	No	2.0	
	Weather louvre, with wire mesh WL01 800 mmx400 mm	EI		
4/1/53	Install	No	1.0	
4/1/54	Supply	No	1.0	
	WL02 400 mmx400 mm	EI		
4/1/55	Install	No	1.0	
4/1/56	Supply	No	1.0	
	WL03 600 mmx400 mm	EI		
4/1/57	Install	No	1.0	
4/1/58	Supply	No	1.0	

	WL04 600 mmx600 mm	EI	
4/1/59	Install	No	1.0
4/1/60	Supply	No	1.0
	Galvanized Sheet Metal Ducting	H2	
	Galvanized Sheet Metal Ducting Supply and install un-insulated galvanized sheet metal ducting complete with flanged joints & duct hangers.		
	150 mmø	H3	
4/1/61	Install	EI	
4/1/62	Supply	m	20.0
	200 mmø	m	20.0
4/1/63	Install	EI	
4/1/64	Supply	m	25.0
	300 mmø	m	25.0
4/1/65	Install	EI	
4/1/66	Supply	m	3.0
	315 mmø	m	3.0
4/1/67	Install	EI	
4/1/68	Supply	m	2.0
	400 mmø	m	2.0
4/1/69	Install	EI	
4/1/70	Supply	m	1.0
	200 mmx200 mm	m	1.0
4/1/71	Install	EI	
4/1/72	Supply	m	19.0
	300 mmx300 mm	m	19.0
4/1/73	Install	EI	
4/1/74	Supply	m	25.0
	400 mmx300 mm	m	25.0
4/1/75	Install	EI	
4/1/76	Supply	m	3.0
	400 mmx400 mm	m	3.0
4/1/77	Install	EI	
4/1/78	Supply	m	2.0
	Extra-over un-insulated galvanized ducting for fittings, completely installed Rectangular Bend (90°)		
	300 mmx200 mm-300 mmx200 mm		
4/1/79	Install	EI	
4/1/80	Supply	No	2.0
	400 mmx400 mm-400 mmx400 mm	No	2.0
4/1/81	Install	EI	
4/1/82	Supply	No	1.0
	300 mmx300 mm-300 mmx300 mm	No	1.0
4/1/83	Install	EI	
4/1/84	Supply	No	1.0
	Round Bend (90°)	No	1.0
	200 mmø-200 mmø	H3	
4/1/85	Install	EI	
4/1/86	Supply	No	4.0
	Round Takeoff 150 mmø-150 mmø	No	4.0
4/1/87	Install	EI	
4/1/88	Supply	No	2.0
	200 mmø-200 mmø	No	2.0
4/1/89	Install	EI	
4/1/90	Supply	No	25.0
	300 mmø-300 mmø	No	25.0
4/1/91	Install	EI	
4/1/92	Supply	No	2.0
	Transition 300 mmx300 mm-315 mmø	No	2.0
4/1/93	Install	EI	
4/1/94	Supply	No	1.0
	400 mmx400 mm-315 mmø	No	1.0
		EI	

4/1/95	Install	No	1.0		
4/1/96	Supply	No	1.0		
	400 mmx400 mm-400 mmø	EI			
4/1/97	Install	No	1.0		
4/1/98	Supply	No	1.0		
	800 mmx400 mm-400 mmø	EI			
4/1/99	Install	No	1.0		
4/1/100	Supply	No	1.0		
	300 mmx200 mm-200 mmx200 mm	EI			
4/1/101	Install	No	1.0		
4/1/102	Supply	No	1.0		
	400 mmx300 mm-300 mmx300 mm	EI			
4/1/103	Install	No	1.0		
4/1/104	Supply	No	1.0		
	400 mmx400 mm-300 mmx200 mm	EI			
4/1/105	Install	No	1.0		
4/1/106	Supply	No	1.0		
	400 mmx400 mm-400 mmx300 mm	EI			
4/1/107	Install	No	1.0		
4/1/108	Supply	No	1.0		
	400 mmø-400 mmx300 mm	EI			
4/1/109	Install	No	1.0		
4/1/110	Supply	No	1.0		
	559 mmx559 mm-400 mmø	EI			
4/1/111	Install	No	1.0		
4/1/112	Supply	No	1.0		
	400 mmx300 mm-300 mmx300 mm	EI			
4/1/113	Install	No	1.0		
4/1/114	Supply	No	1.0		
	400 mmø-350 mmx300 mm	EI			
4/1/115	Install	No	1.0		
4/1/116	Supply	No	1.0		
	600 mmx400 mm-400 mmø	EI			
4/1/117	Install	No	1.0		
4/1/118	Supply	No	1.0		
	300 mmx200 mm-200 mmx200 mm	EI			
4/1/119	Install	No	1.0		
4/1/120	Supply	No	1.0		
	300 mmx300 mm-300 mmx200 mm	EI			
4/1/121	Install	No	1.0		
4/1/122	Supply	No	1.0		
	350 mmx300 mm-200 mmx200 mm	EI			
4/1/123	Install	No	1.0		
4/1/124	Supply	No	1.0		
	350 mmx300 mm-300 mmx300 mm	EI			
4/1/125	Install	No	1.0		
4/1/126	Supply	No	1.0		
	Tee	H3			
	400 mmx400 mm-400 mmx400 mm-400 mmx400 mm	EI			
4/1/127	Supply	No	1.0		
4/1/128	Supply	No	1.0		
	400 mmx300 mm-400 mmx300 mm-400 mmx300 mm	EI			
4/1/129	Install	No	1.0		
4/1/130	Supply	No	1.0		
	350 mmx300 mm-350 mmx300 mm-350 mmx300 mm	EI			
4/1/131	Install	No	1.0		
4/1/132	Supply	No	1.0		
	Washable pleated fresh air intake filters	H3			
	FB1G4 Washable Filter600 mmx600 mmx2	EI			
4/1/133	Install	No	4.0		

4/1/134	Supply FB1G4 Washable Filter600 mmx600 mm-600 mmx600 mm (Filter replacement)	No	4.0		
4/1/135	Install	No	4.0		
4/1/136	Supply Un-Insulated Flexible Ducting, including claps Ø 150mm	No	4.0		
4/1/137	Install	m	100.0		
4/1/138	Supply Magnehelic filter gage set complete installed	m	100.0		
4/1/139	Install	EI			
4/1/140	Supply	No	2.0		
4/1/141	Guarantee and Maintenance of Complete HVAC installation for a period of 12 months	No	2.0		
4/1/142	Preparation and submittal of shop drawings	SUM	1.0		
4/1/143	Three sets of complete operating and maintenance manuals for the HVAC installation	SUM	1.0		
4/1/144	As built drawings	SUM	1.0		

<b>SECTION 5</b>		<b>H1</b>		
<b>BILL NO 1</b>		<b>H1</b>		
<b>FIRE SPRINKLER SYSTEMS</b>		<b>H1</b>		
	All in accordance with the drawings and specification			
	Price given below shall be nett cost of equipment and materials supplied and installed on site and shall:			
	- include profit, overheads, financing, insurance and guarantee costs			
	- exclude VAT			
	Preliminary and General: Pressure testing and commissioning of system in accordance with ASIB procedures.			
5/1/1		No	1.0	
5/1/2	Hydraulic Calculations	No	2.0	
5/1/3	Detail Shop Drawings	SUM	1.0	
	Manifold: Sprinkler manifold complete with two DN100 inlets, 2 DN100 outlets each with alarm valve, butterfly valve, flow alarm, DN50 drain valve, DN25 test valve, 1,5bar glycerine filled guages and DN65 twin booster connection.			
5/1/4		No	1.0	
5/1/5	Ceiling Mounted, 140°C glass bulb sprinklers.	No	140.0	
	Sprinkler Distribution and Ranger Piping: including all hangers, supports, brackets, risers.( painted in fire red)			
5/1/6	DN 100 Galvanised Steel (Schedule 40) PN16	m	130.0	
5/1/7	DN 32 Galvanised Steel PN16	m	90.0	
5/1/8	DN 25 Galvanised Steel (Schedule 10) PN16	m	260.0	
	Pipe Fittings: Long radius bends, butt welded.			
	Cross	H3		
5/1/9	32 mmø-32 mmø-32 mmø-32 mmø	No	6.0	
5/1/10	100 mmø-100 mmø-100 mmø-100 mmø	No	4.0	
	Elbow	H3		
5/1/11	25 mmø-25 mmø	No	83.0	
5/1/12	32 mmø-32 mmø	No	4.0	
5/1/13	100 mmø-100 mmø	No	4.0	
	Reducer	H3		
5/1/14	32 mmø-25 mmø	No	140.0	
5/1/15	100 mmø-25 mmø	No	16.0	
5/1/16	100 mmø-32 mmø	No	42.0	
	Tee	H3		
5/1/17	25 mmø-25 mmø-25 mmø	No	60.0	
5/1/18	32 mmø-32 mmø-32 mmø	No	38.0	
5/1/19	100 mmø-100 mmø-100 mmø	No	40.0	

	<b>SECTION 5</b>	<b>H1</b>		
	<b>BILL NO 2</b>	<b>H1</b>		
	<b>CONVENTIONAL SYSTEMS</b>	<b>H1</b>		
	All in accordance with the drawings and specification			
	Price given below shall be nett cost of equipment and materials supplied and installed on site and shall:			
	- include profit, overheads, financing, insurance and guarantee costs			
	- exclude engineering and management costs			
	- exclude VAT			
	HOSE REELS	H3		
	Fire hose reel complete: New fire hose reel, complete and including drum, 30m, Ø 25 hose, mounting brackets, stands, cock valve and union, nozzle, runner, internal and external service sticker.	No	2.0	
5/2/20	Fire Hosereel main piping: including all fittings, hangers, supports, brackets, bracing, couplings and droppers to outlets	H3		
5/2/21	DN 40 Schedule 10 (PN 16)	m	100.0	
5/2/22	DN 32 Schedule 10 (PN 16)	m	15.0	
5/2/23	DN 25 Schedule 10 (PN 16)	m	15.0	
	PORTABLE EXTINGUISHERS	H3		
	Fire Extinguishers: complete with backing boards and holding clips.	H3		
5/2/24	9 kg DCP (UL 40B:C rated)	No	12.0	
5/2/25	5 kg CO2	No	2.0	
	SMOKE DETECTION	H3		
	Panel: 4 - Loop addressable panel completely programmed and provided with 24V DC power unit(s).	No	1.0	
5/2/26	N/C contactors to switch off fresh air fans	No	4.0	
5/2/27				
5/2/28	Manual Call Points: Resettable red break glass units	No	8.0	
5/2/29	65db Siren Horns with strobe	No	6.0	
5/2/30	Break Glass Units	No	6.0	
5/2/31	Smoke detectors	No	50.0	
	Loop Wiring: PH120 rated loop wiring	H3		
5/2/32	Loop - 1	m	400.0	
5/2/33	Loop - 2	m	350.0	
	32mm Round galvanised steel conduit with T-junction boxes and saddles	m	750.0	
5/2/34	FIRE EMERGENCY SIGNAGE	H3		
	Pictogram Chromadek signs with aluminium frames and brackets.	No	30.0	
5/2/35	Three sets of complete operating and maintenance manuals for the Fire installation	SUM	1.0	
5/2/36	As built drawings	SUM	1.0	
5/2/37				

	<b>FIRE PROTECTION INSTALLATION SUMMARY</b>				
5/1	FIRE SPRINKLERS	Page	118		
5/2	CONVENTIONAL SYSTEMS	Page	120		
1	PRELIMINARIES	Page	23		
2	BUILDER'S WORK	Page	49		
3	ELECTRICAL INSTALLATIONS	Page	105		
4	MECHANICAL INSTALLATIONS	Page	116		
5	FIRE PROTECTION INSTALLATIONS	Page	121		
	<b>Subtotal</b>	<b>ST</b>			
	ALLOW CONTINGENCY	H2			
	ADD: Construction Contingency	Item	5%		
	<b>Subtotal</b>	<b>ST</b>			
	VAT	TAX	15%		
	<b>TOTAL</b>	<b>ST</b>			