

**PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL
DEPARTMENT OF PUBLIC WORKS**



KWAZULU-NATAL PROVINCE

**PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA**

BILLS OF QUANTITIES

with GCC for Construction Works - Second Edition 2010

**CONTRACTUAL SECTION
ONE VOLUME APPROACH**

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS
TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND
ENCLOSING OF EXISTING BALCONIES**

Engineer/Principal Agent

Mrs Bonani Mkhize
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(033) 326 1122 - Fax Number
agape@agapecdc.co.za

Employer:

Head: Public Works
KZN Department of Public Works
Private Bag X 9041
PIETERMARITZBURG
3200
Tel Number: 033 - 8971300
Fax Number: 033 - 8971399

Architect

Agape Community Consulting Development cc
P.O. Box 19932
ASHBURTON
3213
(033) 326 1122 - Tel Number
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Region:

Regional Manager
KZN Department of Public Works
X9041
Pietermaritzburg
3200
Tel Number: 033-897 1300/1440
Fax Number: 033-897 1399

Tender Number: ZNTM01182W
CIDB Grading: 7GB or Higher
ECDP Number: N/A

Project Code: 059789
Document Date: 26 May 2023

Contracting Party: _____
CIDB Registration number: _____
Central Suppliers Database Registration Number: _____



KWAZULU-NATAL PROVINCE
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BALCONIES**

THE CONTRACT



KWAZULU-NATAL PROVINCE

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BALCONIES**

C1 - AGREEMENT AND CONTRACT DATA



KWAZULU-NATAL PROVINCE

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BALCONIES**

FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE

Tender No - ZNTM01182W



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C.1.1 - FORM OF OFFER AND ACCEPTANCE

THE OFFER AND ACCEPTANCE FORM IS BOUND INTO **SECTION 1** (See end of Returnable Documents) OF THIS DOCUMENT AS PART OF THE RETURNABLE DOCUMENTS. ONCE A CONTRACT IS CONCLUDED WITH A SUCCESSFUL TENDERER, THIS PAGE WILL BE REPLACED WITH THE FILLED AND SIGNED OFFER AND SIGN ACCEPTANCE BY THE EMPLOYER AND IT WILL BECOME PART OF THE CONTRACT.

PLEASE SUBMIT THE OFFER AND ACCEPTANCE FORM WITH THE OTHER
RETURNABLE DOCUMENTS.



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**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

C1.2 - CONTRACT DATA

C 1.2 CONTRACT DATA: with GCC for Construction Works - Second Edition 2010	
CONTRACT DATA FOR:	
SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES	
Tender no:	ZNTM01182W
The General Conditions of Contract are the clauses contained in the General Conditions of Contract (2010) (Second Edition) published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained through most regional offices of the South African Institution of Civil Engineering, telephone number 011 805 5947 or by visiting their website at www.saice.org.za .	
CONTRACT SPECIFIC DATA The following contract specific data are applicable to this contract:	
CONTRACT VARIABLES This schedule contains all variables specific to this document and is divided into pre-tender and post-tender categories. The pre-tender category must be completed in full and included in the tender documents. Both the pre-tender and post-tender categories form part of this agreement. Spaces requiring information must be filled in, shown as 'not applicable' or deleted but not left blank. Where choices are offered, the non-applicable items are to be deleted. Where insufficient space is provided the information should be annexed hereto and cross referenced to the applicable clause of the schedule. Key cross reference clauses are italicised in [] brackets. The Engineer/Principal Agent, in accordance with Clause 1.1.1.16, shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties as described in Clause 3.1.2.	
Part 1: CONTRACT DATA PROVIDED BY THE EMPLOYER:	
PRE-TENDER INFORMATION	
CONTRACTING AND OTHER PARTIES	
[1.1.1.15]	Employer: Head: Public Works (KZN Department of Public Works: Province of KwaZulu-Natal) Postal address: Private Bag X 9041 PIETERMARITZBURG 3200 Tel: 033 - 8971399 Fax: 033 - 8971300
[1.2.1.2]	Physical address: 191 Prince Alfred Street PIETERMARITZBURG 3200
[1.1.1.16]	Employers Agent 1 Agape Community Consulting Development cc Agent's service: Architect Postal address: P.O. Box 19932 ASHBURTON 3213 Tel: (033) 326 1122 Fax: (033) 326 1122
	Employers Agent 2 Malata and Associates Quantity Surveyor Agent's service: Quantity Surveyor Postal address: P.O. Box number 712 Pietermaritzburg 3200 Tel: 033 811-1989 Fax: 086 520 7572
	Employers Agent 3 Royal HaskoningDHV (Pty)LTD Agent's service: Structural Engineer Postal address: P.O. Box 1066 Pietermaritzburg 3201 Tel: (087) 357 7600 Fax: (033) 328 1055
	Employers Agent 4 Nduluka Consulting & Mechanical Engineers Agent's service: Mechanical Engineer Postal address: 2 Greyling Street Pietermaritzburg 3201 Tel: (082) 872 9335 Fax: (033) 345 6976

Tender no: ZNTM01182W	
Employers Agent 5 Njilo Njilo Electrical Consulting	
Agent's service: Electrical Engineer	
Postal address: 9 Wallace road Pietermaritzburg 3201	
Tel: insert (033) 396 5227	Fax: [Fax Number including Area Code]
Employers Agent 6 Gatyeni Consulting	
Agent's service: Fire Engineer	
Postal address: 18 Institute Road Pietermaritzburg 3201	
Tel: insert (033) 345 6970	Fax: (086) 519 0782
Employers Agent 7 [Agents Name]	
Agent's service: [Identify Agent's Service, eg. Engineer]	
Postal address: [P.O. Box number] [Name of town] [Code]	
Tel: insert [Tel Number including Area Code]	Fax: [Fax Number including Area Code]
Employers Agent 8 [Agents Name]	
Agent's service: [Identify Agent's Service, eg. Engineer]	
Postal address: [P.O. Box number] [Name of town] [Code]	
Tel: insert [Tel Number including Area Code]	Fax: [Fax Number including Area Code]
PART 1: DATA PROVIDED BY THE EMPLOYER	
[1.1.1.13]	Defects Liability Period The defects liability period is: A time measured from the date of the Certificate of Completion. Defects Liability Period is 12 Months for the whole of the Works
Latent Defect Period	
[5.16.3]	The latent defect period is: 5 years after the Final Approval Certificate
Documentation required before Commencement of the Works:	
[5.3.1]	The documentation required before commencement with the Works execution are;
[4.3]	Health and Safety Plan
[5.6]	Initial Programme
[6.2]	Guarantee
[8.6]	Insurance
	Cash flow by contractor
	Priced Bill of Quantity
	Programme
	Other requirements
[5.3.2]	The time to submit the documentation required before commencement with Works execution is: 14 calendar days

Non-Working days	
[5.8.1]	Non-Working days Special non-working days
	Sundays All Nationally Recognized Public Holidays and the year end break
[5.8.1]	First Year end break - commences ends Second Year end break - commences ends Third Year end break - commences ends Fourth Year end break - commences ends
	16-Dec-23 09-Jan-24 16-Dec-24 09-Jan-25 16-Dec-25 09-Jan-26 16-Dec-26 09-Jan-27
[3.1.3]	Engineer/Principal Agent to consult with Employer The Engineer shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties.
[6.2.1]	Security The time to deliver the deed of guarantee is Prior to site hand over in terms of clause 5.3.1 and 5.3.2.
[6.2.1]	Please see CONTRACT DATA - below to select Guarantee Option
	Commencement Date Commencement date means the date of Site Hand over that should not occur prior to the tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance.
	The Agreement comes into effect on the date when; The tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any) The agreement ("this document") consists of: 1. Agreement and Conditions of Contract 2. Form of Offer and Acceptance 3. Contract Data 4. Scope of Works 5. Site Information 6. Drawings & documents referred to in the 1 to 4 above. (See Form of Offer and Acceptance)
[5.3.1]	The contractor shall commence executing the Works within 7 calendar days from the Commencement Date.
[5.4.1]	Possession of the site will be given within 10 calendar days after the contractor has fulfilled the conditions (4.3, 5.6, 6.2, 8.6) and received the notification from the Employer of Site Hand Over where the contractor will receive one fully signed copy of the Form of Offer and Acceptance from the employer.
[5.6.1]	The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date.
CONTRACT DETAILS	
[1.1.1.33]	Works description: Refer to document C3 – Scope of Work.
[1.1.1.30]	Site description: Refer to document C4 – Site Information.
	Specific options that are applicable to a State organ only Where so :
[6.10.6.2]	1) Interest rate legislation: (a) in respect of interest owed by the employer, the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and (b) in respect of interest owed to the employer, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply
	2) Lateral support insurance to be effected by the contractor:
	3) Payment will be made for materials and goods
	4) Dispute resolution by litigation
	5) Extended defects liability period applicable to the following elements:
	Yes X No Yes X No Yes No X Electrical, Mechanical and Civil work
[8.6.1.1.2]	The Value of material, supplied by the Employer, and not included in the Contract Price, is: R0,00
[8.6.1.1.3]	The amount to cover Professional Fees, not included in the Contract Price, for repairing damage and loss to be included in the insurance: 30% of the Contract Price
[8.6.1.3]	The limit for indemnity for liable insurance is: Unlimited
[6.5.1.2.3]	The percentage allowance to cover overhead charges for contractor and subcontractors, is: 33,30%
[1.1.1.14]	Practical Completion Date The Practical Completion date is: A time measured from the Commencement date.
[5.5.1]	For the works as a whole: The whole of the works shall be completed within: 19 Months (which shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods).
[5.13.1]	The date for practical completion shall be The penalty per calendar day shall be : To be determined 0,04% of the Contract Price, rounded to the nearest R10

	For the works in sections:
	The date for practical completion from the commencement date and the penalty per calendar day:
	Portion 1:
[5.5.1]	3 Calendar Months
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
	Portion 2:
[5.5.1]	N/A
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
	Portion 3:
[5.5.1]	N/A
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
	Portion 4:
[5.5.1]	N/A
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
	Portion 5:
[5.5.1]	N/A
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
	Portion 6:
[5.5.1]	N/A
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10
[1.3.2]	The law applicable to this agreement shall be that of the: Republic of South Africa
[6.10.1.5]	The percentage advance on materials not yet built into the Permanent Works is: 80.00%
[6.10.3]	Percentage retention on amounts due to contractor is: The Percentage retention is nil. The only security required by the Employer will be such as selected by the Contractor on the Form of Offer and Acceptance and Part 2: CONTRACT DATA PROVIDED BY THE CONTRACTOR, point 2 - Documents, of the Contract Data.
	Maximum retention is: 0.00% of the Contract Price
[6.8.1]	Notwithstanding anything to the contrary contained in the General conditions of Contract and Preliminaries, this contract could only, when the construction period exceeds 6 months and the contract exceeds R1,000,000.00, be subject to a Contract Price Adjustment Factor.
[6.8.2]	Clause 6.8.2 the last part of the sentence saying "calculated according to the formula and the conditions set out in the Contract Price Adjustment Schedule." must be replaced by "calculated according to the Contract Price Adjustment Provisions (CPAP) Indices Application Manual for use with P0151 indices (Revised 1 January 2013)" as published by Statistics South Africa. The Contract Price Adjustment Provision (CPAP) will be subject to the most recently released indices by Statistic South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works will not accept the submission by Tenderers of lists of additional items.
[6.8.3]	Where this contract is a Lump Sum contract, the contract will only be subject to Contract Price Adjustment Provisions (CPAP)(Revised 1 January 2013) where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings only.
[5.14.5]	The following clause must be added to clause 5.14.5: [5.14.5.6] The employers agent shall submit the final account within 3 calendar months to the principal agent.
[10.5]	The determinations of disputes shall be by ARBITRATION ONLY.
[10.5.3]	The number of Adjudication Board Members to be appointed is: One
[10.9.1]	Replace the last part of the clause with the following: "...on the application of either party, by the Chairman, or his nominee of the Association of Arbitrators."
	Where CPAP is applicable, the contract sum will be adjusted in accordance with the Contract Price Adjustment Provisions (CPAP) as set out in the CPAP Indices Application Manual as published by Statistics South Africa, dated 1 January 2013 and any amendments thereto: 1) Glass etc. measured in specialist section Metalwork, will be adjusted in terms of the index for that work group unless specifically stated otherwise in the bills of quantities. 2) In case of uninterruptible power supplies, elevators, escalators and hoists, generating sets, motor-alternator sets and intercommunication systems shall be adjusted in accordance with Work Group 170. 3) Further to clause 3.4.6 of the CPAP Indices Application Manual, the listing of additional items for exclusion by Tenderer's, will not be permitted. Alternative Indices: Not Applicable Details of changes made to the General Conditions of Contract for construction works (2010) Second Edition.
[1.1]	Clause [1.1.1.5] COMMENCEMENT DATE – means the actual date of Site Hand over that should not occur prior to the Tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance. [5.12.2.2] ABNORMAL CLIMATIC CONDITIONS - means conditions over and above what could reasonably be expected for the specific locality where the Works are being executed and include inter alia excessive rain, heat, cold, wind and any other climatic condition that would not normally be experienced during the season that the Works are executed in that area. The South African Weather Service's (http://www.weathersa.co.za) 10 year average climatic conditions statistics would be what could be reasonably expected for the specific locality where the Works are executed. [6.2.1] CONSTRUCTION GUARANTEE – means an on demand guarantee at call obtained by the contractor from an institution approved by the employer in terms of the employer's construction guarantee form as selected in the Offer and Acceptance Form and the contract data. CONSTRUCTION PERIOD – means the period commencing on the commencement date and ending on the date of due completion date. This period will be deemed to commence on actual site hand over date to the contractor and end on the date of practical completion and shall include all annual industrial holiday periods, Sundays and public holidays. CORRUPT PRACTICE – means the offer, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. FINAL ACCOUNT - The document prepared by the principal agent, which reflects the contract value of the works at final approval or termination. FRAUDULENT PRACTICE – means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any tenderer and includes collusive practise among tenderers (prior to or after the tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the tenderer of the benefits of free and open competition. INTEREST – the interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be in terms of the legislation of the Republic of South Africa, and in particular: (a) in respect of interest owed by the employer, the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and (b) in respect of interest owed to the employer, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply

[1.1.1.16] [1.1.1.21]	ENGINEER/PRINCIPAL AGENT – means the person or entity appointed by the Employer and named in the Contract Data as the Engineer /Principal Agent to act as agent of the Employer. In the event of an Engineer/Principal Agent not being appointed, then all the duties and obligations of an Engineer/Principal Agent as detailed in the Contract shall be fulfilled by a representative of the Employer as named in the Contract Data. (Hereafter referred to as Engineer) GENERAL ITEMS - or preliminaries means items stipulated in the Pricing Data relating to general obligations, site services, facilities and/or items that cover elements of the cost of the work which are not considered as proportional to the quantities of the Permanent Works.
[4.4.1] [6.2.1] [6.10.6.2]	Add the following to the clause 4.4.1: "The Contract shall only use subcontractors who are duly registered with the CIDB and who has an ACTIVE status at the time of submitting the tender" Refer to Offer and Acceptance form for the various options that the contractor may choose from in providing a form of Guarantee under "GUARATEE OPTIONS". Replace "at the prime overdraft rate, as charged by the Contractor's Bank," with "...at the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975)." Omit "on all overdue payments from the date on which the same should have been paid..." and replace with "only after 30 calendar days from receiving written notice from the Contractor that the amount is overdue..."
[5.12.3] [5.14.5.1] [5.16.4] [6.2.2] [6.2.3] [9.3.2.2]	SPECIAL CONDITIONS OF CONTRACT Omit clause 5.12.3 and add the following: "5.12.3. If an extension of time is granted, the Contractor shall be paid such additional time-related General Items, including for special non-working days, if applicable as are appropriate regarding to any other compensation which may already have been granted in respect of the circumstances concerned. The reasons for extension of time that would invoke payment of time related General Items are inter alia; 5.12.3.1 Failure to give possession of the site to the contractor. 5.12.3.2 Making good physical loss and repairing damage to the works where the contractor is not at risk. 5.12.3.3 Contract instructions not occasioned by default by the contractor. 5.12.3.4 Failure to issue construction information timeously or the late issue of a contract instruction following a request from the contractor. 5.12.3.5 Late acceptance by the principal agent of a design undertaken by a selected subcontractor where the contractor's obligations have been met. 5.12.3.6 Suspension or cancellation termination invoked by a nominated or selected n/s subcontractor due to default by the employer or the principal agent. 5.12.3.7 Insolvency of a nominated subcontractor. 5.12.3.8 A direct contractor. 5.12.3.9 Opening up and testing of work and materials and goods where such work is according to in accordance with the contract documents. 5.12.3.10 The execution of additional work for which the quantity included in the bills of quantities is not sufficiently accurate. 5.12.3.11 Late or failure to supply materials and goods for which the employer is responsible. 5.12.3.12 Suspension of the works." Omit entire clause 5.14.5.1 Add the following new clause "5.16.4. Upon the issue of a Final Approval Certificate, unless otherwise provided in the Contract: 5.16.4.1. The performance Guarantee (if any) shall be returned within 14 days to the guarantor in terms of Clause 7." Replace the following "...it shall be deemed that the Contractor has selected a security of ten percent retention of the value of the Works." with "...it shall be deemed that the Contractor has selected a security of a bank or insurance guarantee of 5% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax." Add to clause 6.2.3 the following "The Contractor shall provide proof of paid-up premium payments to accompany his payment certificate as proof that his performance guarantee has not expired yet. The Contractor will not receive payment without proof of the validity of their performance" Omit "without prejudice to the exercise of any lien the Contractor may have acquired over the Employer's property." Duties and functions of the Engineer requiring the specific approval of the Employer BEFORE execution of any part of these duties are as follows: (a) Determinations of contractors claims for extension of time (revision of the contract completion date). All claims for extension of time shall be submitted by the Engineer, together with the Engineer's recommendations, to the Employer for determination. Omit "Engineer" in clause 42.2 (b) Drawings, instructions or communications of any kind requiring variations of the works and involving EXTRA's shall NOT be given effect by the Contractor UNTIL BOTH the "Official Variation Order" and the "Financial Request for Variation Order and Additional Funds" form, as issued by the Department of Public Works, have been approved and signed by the Employer. (c) Insurance policies to be approved by the Employer within 21 days of the date of the Commencement of the Works. (d) Any notice of disagreement raised by the Contractor or written Dispute Notice given by the Contractor to the Engineer shall be submitted by the Engineer, together with the Engineer's recommendations, to the Employer for determination. (e) The issue of the certificate of practical completion, certificate of completion and the final approval certificate shall be signed and submitted by the Engineer, to the Employer for final approval and signature. The certificates shall not be considered as officially issued until signed by the MANAGING PROJECT DURATION (a) The Contractor shall co-ordinate his programme with all other contractors whose work may precede or be executed simultaneously to his own. The Contractor will be called upon to plan and control the project using the Project Evaluation and Review Technique (PERT) or other approved Critical Path Method (CPM) network analysis of his events and activities and those of the sub-contractors in his employ and must co-ordinate his planning with any other contractor employed on the project. A fortnightly project control report will be expected from the Contractor in writing, evaluating any gains or delays against the critical path and he should allow for all costs involved in planning reviewing and updating the programme to the satisfaction of the Principal Agent against this item. (b) Activity-and total float shall belong to the Employer. (c) The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date. It is a condition of this contract that, the contractor submit to the Engineer/principal agent a detailed CPM Programme which shall be to the approval of the Engineer/principal agent. In this regard tenderers are advised to consult with the Engineer/Principal Agent as to the format and requirements of the programme as no claim whatsoever will be entertained should the programme fail to meet the requirements of the Engineer/Principal Agent. Failure to submit the programme within the stipulated time may result in the contractor being held in breach of contract. The approved programme will form the basis of time management of the project and extension of time will not be guaranteed unless the Contractor has strictly complied with this provision. The programme shall make allowance for rain and the number of rain days allowed within the critical path shall be on the provisions of the clause dealing with inclement weather and claiming for delays in performance in this bill. Allowance for the above must be made under this item as no claims for failing to comply with this precondition will later be entertained. INCLEMENT WEATHER AND CLAIMS FOR DELAYS IN PERFORMANCE (a) The inclement weather will be claimed as per conditions of contract. (b) Claims for delays in performance due to inclement weather shall be calculated separately for each calendar month and for the project as a whole. Delays or gains to the critical path shall be reflected in all revisions of the programme. An extension of time will only be granted where the following conditions are met: (i) The criteria to be used for WORK stoppages shall be for safety hazards or poor quality of work. (ii) The Employer's site representative or the Employer's Principal Agent, if the site representative is not available shall be notified when the Contractor stops the work and intends to claim performance delays. The Employer representative shall inspect the situation together with the Contractor and give an immediate decision.

		1. The stoppage claimed must cause a delay in the Completion Date of work. If the critical activities can proceed and a non-critical activity is delayed due to inclement weather no claims for delay shall be granted. 2. No claims for stoppages less than 2(two) hours per day shall be considered. 3. Claims granted for more than 2 (two) hours, but less than 10 (ten) hour (lunch included) day, shall be added together and expressed as full days. 4. All claims shall be submitted in writing to the Principal Agent within one working day of the actual stoppage. 5. The total delay in performance granted to the Contractor expressed in days shall be added to the contractual Completion Date of each section of the Works. The contractual penalty clause shall only come into effect after this newly arrived date. 6. Total delays (in hours) will be rounded up or down to the nearest integer for the calculation of Working Days. The total hours (including lunch) per Working Day shall be 10 unless otherwise indicated on the Contractor's programme. 7. Where the programmed delays for inclement weather exceed the actual delays incurred the Completion Date(s) will not be adjusted. 8. Where the project includes builder's holidays the programmed durations for inclement weather shall be adjusted pro-rate to the actual Working Days. 9. The total of all monthly delays due to inclement weather shall be calculated in accordance with the example given below: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Description</th> <th colspan="5">Months</th> <th rowspan="2">Total Hours</th> </tr> <tr> <th>Sept Hours</th> <th>Oct Hours</th> <th>Nov Hours</th> <th>Dec Hours</th> <th>Jan Hours</th> </tr> </thead> <tbody> <tr> <td>Programmed Rain days</td> <td>0</td> <td>30</td> <td>30</td> <td>15</td> <td>15</td> <td>90</td> </tr> <tr> <td>Actual Rain days</td> <td>16</td> <td>22</td> <td>35</td> <td>15</td> <td>18</td> <td>106</td> </tr> <tr> <td>Difference</td> <td>-16</td> <td>8</td> <td>-5</td> <td>0</td> <td>-3</td> <td>-16</td> </tr> <tr> <td colspan="6" style="text-align: right;">Estimated Extension of time - in working days</td> <td>2</td> </tr> </tbody> </table> 8 hrs/day* See point 5.2 in the Scope of Works for the specific days the tenderer must allow for in this contract.	Description	Months					Total Hours	Sept Hours	Oct Hours	Nov Hours	Dec Hours	Jan Hours	Programmed Rain days	0	30	30	15	15	90	Actual Rain days	16	22	35	15	18	106	Difference	-16	8	-5	0	-3	-16	Estimated Extension of time - in working days						2
Description	Months					Total Hours																																				
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Difference	-16	8	-5	0	-3	-16																																				
Estimated Extension of time - in working days						2																																				
Tender no:	ZNTM01182W	Part 2: CONTRACT DATA PROVIDED BY THE CONTRACTOR:																																								
	POST-TENDER INFORMATION Note: All information for this section requires consultation with the Contractor. The Engineer/Principal Agent shall not pre-select any of the alternatives available to the Contractor.																																									
	1 CONTRACT DETAILS																																									
[1.1.1.9]	Contractor Name: _____																																									
[1.2.1.2]	Postal address: _____ _____ _____																																									
	Tel no: _____ Fax no: _____																																									
	Tax / VAT Registration No: _____ e-mail: _____																																									
	Physical address: _____ _____ _____																																									
[1.1.1.10]	The accepted contract price inclusive of tax is R : _____ [Amount in words] _____																																									
	Payment Of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11)																																									
	The preliminaries amounts shall be paid in terms of: <table border="1" style="float: right; margin-top: 10px;"> <tr> <td>*Alternative A</td> <td>Yes</td> </tr> <tr> <td>**Alternative B</td> <td>N/A</td> </tr> </table>		*Alternative A	Yes	**Alternative B	N/A																																				
*Alternative A	Yes																																									
**Alternative B	N/A																																									
	<i>* Assessed by the Engineer/Principal Agent as an amount prorated to the value of the Work duly executed in the same ratio as the Preliminaries bears to the Contract Price excluding VAT, Preliminary amount, Contingencies and any CPAP.</i> <i>** Calculated from the priced Bill of Quantity/Lump Sum document. The Contractor and the Engineer/Principal Agent shall agree on a division of the priced Preliminaries items into: initial establishment charge, monthly charge and final disestablishment charge.</i>																																									
	If the Contractor and the Engineer/Principal Agent cannot agree, within 10 Working Days from the Commencement Date, on such a division then the Engineer/Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows: 10% of the General Items/Preliminaries amount shall not be varied 15% of the General Items/Preliminaries shall only be varied in proportion of the Contract Price to the Contract Sum 75% of the General Items/Preliminaries shall be varied in proportion to the revised Construction Period compared with the Initial Construction Period.																																									
Alternative A	Adjustment of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11) For the adjustment of Preliminaries both the Contract Sum and the Contract Value (including tax) shall exclude the amount of Preliminaries, all Contingency Sum(s) and any provision for Cost Price Adjustment Provisions:- - An amount which shall not be varied. - An amount varied in proportion to the contract value as compared to the Contract Sum. - An amount varied in proportion to the Construction Period as compared to the initial Construction Period (excluding revisions to the Construction Period to which the Contractor is not entitled) to adjustment of the Contract Value in terms of the agreement. The Contractor shall provide a breakdown of charges (including tax) within 15 working days of the date of acceptance of tender and, where applicable, an apportionment of Preliminaries per section. If the Contractor and the Principal Agent cannot agree, within ten (10) Working Days from the Commencement Date, on such a division then the Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows: 10% of the amount shall not be varied 15% varied in proportion of the Contract Value to the Contract Sum 75% varied in proportion to the revised Construction period compared with the Initial Construction Period Sectional Completion : Subdivision of Preliminaries Costs For the adjustment of preliminaries for sections of the work the value of fixed, value, and time related amounts of the preliminaries for each section is required. The contractor is to provide such information within fifteen (15) working days of taking possession of the site, failing which the categorised preliminaries amounts shall be prorated to the value of each section. The above shall apply equally for projects where sectional completion was not contemplated at tender stage but subsequently occurred on an adhoc basis during construction of the works as agreed between the client and the employer. The original priced categorised amounts for fixed, value, and time related amounts shall be prorated to the value of each section. When an extension of time has been granted in terms of the GCC and the preliminaries require to be adjusted accordingly, the pertinent sectional (subdivided) categorised preliminaries amounts shall be utilised, where applicable and not the overall preliminary amounts. Where sectional completion is required in terms of the agreement, the Contractor shall provide the Principal Agent with the division of the above categorized amounts into sections. Should the Contractor fail to provide such information within the period stipulated the categorized amounts shall be prorated to the value of each section.																																									

or		YES	yes / no
Alternative B	The Contractor shall within 15 working days of the date of possession of the site provide the Principal Agent with a detailed breakdown of Preliminaries amounts for the works as a whole, or per section where applicable, including administrative and supervisory staff charges and for the use of construction equipment in terms of the programme.	NO	yes / no
The contractor is informed that only option 'A' shall apply			
2 DOCUMENTS			
Contract documents marked and annexed hereto:			
Priced Bills of Quantities:	Yes	No	
Lump Sum document:	Yes	No	
Guarantee Options:			
Not applicable			
2.2 DESIGN BRIEF			
Not applicable		YES or NO	
2.3 DRAWINGS		YES or NO	
See list of drawings/Annexure's attached to this document.		YES or NO	
2.4 DESIGN PROCEDURES		YES or NO	
Not applicable			
Contract drawings:	Yes	No	
Other documents:			
Waiver of the Contractors lien or right of continuing possession is required. YES			
GUARANTEE OPTIONS			
The Tenderer agrees to provide a bank or insurance guarantee in accordance with clause 6.2.3 of the Conditions of the GCC2010 Contract within the period stated in the Contract Data. This guarantee shall be for a sum equal to an amount stated in the Contract Data.			
Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act (Long Term Insurance Act No 52 of 1998 or Short Term Insurance Act No 53 of 1998) or by a bank duly registered in terms of the Banks Act No 94 of 1990, on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.			
(a) the tenderer accepts that in respect of contracts up to R1 million, a payment reduction of 5% of the contract value will be applicable and will be reduced by the Employer in terms of the applicable conditions of contract.			
(b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below: select one option			
(i) cash deposit of 10 % of the Contract Price			
(ii) bank or insurance Performance Guarantee of 10 % of the Contract Price			
(iii) cash deposit of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)			
(iv) bank or insurance guarantee of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)			
NOTE: Where the Tenderer has not selected one of the guarantee options above, the default option will be as if the Tenderer has selected a security of a bank or insurance guarantee of 5% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax. - See GCC2010 clause 6.2.2 as amended in Contract Data.			
3 SIGNATURES OF THE CONTRACTING PARTIES			
Thus done and signed at.....on.....of.....20.....			
Name of signatory	for and behalf of the Employer who by signature hereof		
Capacity of signatory	as Witness.		
Thus done and signed at.....on.....of.....20.....			
Name of signatory	for and behalf of the Contractor who by signature hereof		
Capacity of signatory	as Witness.		



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

C1.3 - FORM OF GUARANTEE

**C1.3 PERFORMANCE GUARANTEE -
GCC FOR CONSTRUCTION WORKS (2nd Edition - 2010)**

Head: Public Works
KZN Department of Public Works:
Private Bag X 9041
PIETERMARITZBURG
3200

Sir,

ON DEMAND PERFORMANCE GUARANTEE

Tender Number ZNTM01182W

Project Code 059789

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: _____

Physical Address: _____

"Employer" means: The Provincial Administration of KwaZulu-Natal in its Department of Public Works

"Contractor" means: _____

"Engineer" means: _____

"Works" means: **SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT
REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK
B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

"Site" means: _____

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of: _____

Amount in Words:

"Guaranteed Sum" means: The maximum aggregate amount of: 10%
Of Contract Sum

Amount in Words: _____

"Expiry Date" means: _____

CONTRACT DETAILS

Engineer Issues: Interim Payment Certificates, Final Payment Certificates and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

- 1 The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2 The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
- 3 The Guarantor hereby acknowledges that:
 - 3,1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3,2 its obligation under the Performance Guarantee is restricted to the payment of money.
- 4 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4,1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4,2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4,3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum Certified in 4.
- 5 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5,1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5,2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5,3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 6 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
- 7 Where the Guarantor has made payments in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Payment Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 8 Payment by the Guarantor in terms of 4 or 5 shall be made with seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 9 Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

- 10 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 11 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 12 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 13 This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 14 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Court Act No 32 of 1944, as amended, to this jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT
EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

PART C2 - PRICING DATA

C2.1 PRICING INSTRUCTIONS

GCC FOR CONSTRUCTION WORKS (Second Edition 2010)

Project title:	SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES		
Tender no:	ZNTM01182W	Project Code:	059789

C2.1 Pricing Instructions

	Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable") The adjustment of the preliminaries each item priced is to be allocated to one or more of the three categories by insertion of "F", "V", "T" as the case may be against the price in the "rate" column immediately preceding the "amount" column, where "F" denotes a fixed amount (amount not varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount variable in proportion to time.
1	MASSES AND MEASURING UNITS These shall be in accordance with the Measuring Units and National Measuring Standards Act No. 76 of 1973 and amendments thereto. The pages of each of these documents are numbered consecutively and before the Tenderer submits his tender he should check the number of pages, and if any are found missing or duplicated, or the figures or writing indistinct, or the documents contain any obvious error, he should apply to the Head : Public Works AT ONCE and have same rectified as no liability whatsoever will be admitted by the Administration in respect of errors in Tender due to the foregoing.
2	PRICES FOR VARIATIONS Where prices or quotations for variations are submitted by the Contractor during the currency of the Contract, it is to be clearly understood that these are for the purpose of consideration by the Head : Public Works and that there is no assumption of acceptance. The Contractor will be notified of acceptance of prices or quotations either by insertion of the amount on the variation order or by written intimation.
3	SCALE The scale to which the Drawings are made is only to be made use of when no figured dimensions are given either on the Drawings or in the tender documents and the figured dimensions are always to be followed though they may not coincide with the scale of the Drawings, but dimensions where possible are to be taken from the buildings.
4	PROVISIONAL ITEMS All items described as "Provisional" shall be used as directed by the Employer and measured and valued or paid for. No work for which "Provisional" items are allowed shall be commenced without written instructions from the Head : Public Works.

5	TIMELY ORDERING OF MATERIALS The Contractor is warned to place all orders for materials or special articles as early as possible, as he will be held solely responsible for any delay in the delivery of such goods. Nevertheless this tender is conditional upon no liability being attached to the Contractor if delivery of materials is rendered impossible by reason of any act of the Government.
6	ELECTRICAL LIGHTING, POWER AND WATER The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Employer. The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed. Tenderers are advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.
7	IMPORT PERMITS, DUTIES AND SURCHARGES. All tenders by means of which imported products are being called for, must use the rate of exchange 14 days prior to the closing date indicated in the tender documents. If this day falls on a weekend or public holiday, the next working day must be used. Furthermore, Tenderers must submit documentary proof (in the form of a certified copy) from their bank or legally recognised financial institution, clearly indicating what the rate of exchange was 14 days prior to the closing date, as mentioned above. Together with this, the Tenderer must confirm that the tender price relating to an imported product, was based on the rate of exchange 14 days prior to the closing date as mentioned above.
8	STANDARD SYSTEM OF MEASUREMENT WHERE BILLS OF QUANTITIES FORM PART OF THE TENDER DOCUMENTS The work executed under this Contract has been measured in accordance with the; Standard System of Measuring Builders Work (7th Edition) including all amendments unless descriptions of items indicate a deviation and it shall be understood that the system of measurement which is herein adopted is the only system of measurement which will be recognised in connection with this contract. Any contradictions to this system of measurement contained in the "Model Preambles for Trades 2008" shall be disregarded (unless same have been accommodated in the system of measurement) but applicable rates shall be included for all requirements stated and not measured separately in compliance with this system.
9	PRICING OF ROCK EXCAVATIONS It is a condition of this tender that should the tenderer elect to price the Rock Excavation included in this tender, the rates must be market related and should be identically priced for the same classification of excavations and not vary for similar billed items in the different sections.
10	BROAD BASED BLACK ECONOMIC EMPOWERMENT

1. It is the deliberate policy of the Provincial Administration of KwaZulu-Natal to foster and to encourage the economic empowerment of Black South Africans. This policy will be implemented without prescription and without prejudicing the principles and the integrity of the Provincial Administration of KwaZulu-Natal. Subject to these constraints and also subject to good business practise and commercial consideration, it is therefore considered appropriate that the Provincial Administration of KwaZulu-Natal should encourage business relationships with companies which actively pursue Affirmative Action and Black Economic Empowerment Programmes.
2. In responding to this tender you are therefore encouraged to devote attention to these two subjects of Affirmative Action and Economic Empowerment. In addition, in considering the appointment of sub-contractors, you are requested to extend the spirit of these policies.
3. The foregoing enunciations of this policy are not intended to be prescriptive nor to preclude any individual or operation from responding to this tender.

11 REGISTRATION ON THE CENTRAL SUPPLIERS DATABASE

1. In terms of the Public Finance Management Act (PFMA), 1999 (Act No 1 of 1999) Section 38 (1) (a) (iii) and 51 (1) (iii) and Section 76 (4) of PFMA National Treasury developed a single platform, The Central Supplier Database (CSD) for the registration of prospective suppliers including the varification functionality of key supplier information.
2. Prospective suppliers will be able to self - register on the CSD website: www.csd.gov.za
3. Once the supplier information has been varified with external data sources by National Treasury a unique supplier number and security code will be allocated and communicated to the supplier. Suppliers will be required to keep their data updated regularly and should confirm at least once a year that their data is still current and updated.
4. Suppliers can provide their CSD supplier number and unique security code to organs of state to view their varified CSD information.
5. Tenderers are required to fill in clearly, legibly, in bold print and black ink their CSD supplier number in the space hereunder:

Name of Supplier	
Central Supplier Database (CSD) Supplier Number:	

12 TAX CLEARANCE REQUIREMENTS

It is a condition of tender that the taxes of the successful tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderder's tax obligations. It is a condition of this Offer of Commission that your practice remains in good standing with SARS (South African Revenue Services) in terms of its tax clearance, during the project, which is required to process your payment certificates.

1. In order to meet this requirement tenderers are required to apply via e-filing at any SARS branch office nationally. The Tax Compliance Status (TCS) requirements are also applicable to foreign Tenderders / individuals who wish to submit Tenders.
2. SARS will then furnish the Tenderder with a Tax Compliance Status (TCS) PIN that will be valid for a period of 1 (one) year from the date of approval.
3. In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) PIN.
4. Application for Tax Compliance Status (TCS) PIN can be done via e-filing at any SARS branch office nationally or on the website www.sars.gov.za.

5	Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za .	
6	Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za .	
	Security PIN Number	
	Company / Entity Tax Reference Number	
13	BILLS OF QUANTITIES/LUMP SUM DOCUMENT The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract documents, the Standard Conditions of Tender, Conditions of Contract, Standard Preambles to all Trades, Specifications, Drawings and all other relevant documentation.	
14	VALUE ADDED TAX The tender price must include for Value Added Tax (VAT). All rates, provisional sums, etc. in the Bills of Quantities must however be net (exclusive of VAT) with VAT calculated and added to the Total Value thereof in the Final Summary.	
15	FIXED PRICE CONTRACT Should the Bills of Quantities/Lump Sum Document be a fixed price contract, the following clause must be inserted in the Pricing Instructions: Tenderders are to take note that the contract price adjustments are not applicable to this contract. Tenderders should therefore make provision in the Contract Sum, schedule of rates, etc. for possible price increases during the contract period, as no claims in this regard shall be entertained.	



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
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**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT
EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

**C2.2 - Preliminaries for GCC for Construction works - 2nd Edition
2010**

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

**BILL NO. 1
C2 .2 PRELIMINARY AND GENERAL**

	NOTES	UNIT	QUANTITY	RATE	AMOUNT
i)	The agreement is to be the General Conditions of Contract for Works of Civil Engineering Construction (2010) (Second Edition) , published by the S. A. Institution Of Civil Engineering.				
ii)	The Preliminaries are to be the Construction and management requirements for works contracts - Part 1: General engineering and construction works (SANS 1921-1: 2004 Edition 1) prepared by Standards South Africa and shall be deemed to be incorporated herein.				
iii)	Tenderers are referred to the abovementioned documents for the full intent and meaning of each clause thereof (hereinafter referred to by heading and clause number only) for which such allowance must be made as may be considered necessary.				
iv)	Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading.				
v)	Where any item is not relevant to this specific contract such item is marked N/A (signifying "not applicable").				
vi)	Adjustment of the preliminaries: each item priced, is to be allocated to one or more of the three categories, where "F" denotes a fixed amount (amount not to be varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount in proportion to time.				
vii)	Time (T) related Preliminaries will only be adjusted for omissions or additions, issued by the Employer, or delays caused by the Employer, for which variation and extension of time has been granted. See Contract Data .				
	SECTION A: GENERAL CONDITIONS OF CONTRACT				
A1	General (clause 1) F:..... V:..... T:.....	Item			
A2	Basis of Contract (clause 2) F:..... V:..... T:.....	Item			
A3	Engineer (clause 3) F:..... V:..... T:.....	Item			
A4	Contractor's General Obligation (clause 4) F:..... V:..... T:.....	Item			
A5	Time and Related Matters (clause 5) - As referred to in the Contract Data under Special Condition of Contract. The Contract Period shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
A6	Payment and Related Matters (clause 6) F:..... V:..... T:.....	Item			
A7	Quality and Related Matters (clause 7) F:..... V:..... T:.....	Item			
A8	Risk and Related Matters (clause 8) F:..... V:..... T:.....	Item			
A9	Termination of Contract (clause 9) F:..... V:..... T:.....	Item			
A10	Claims and Disputes (clause 10) F:..... V:..... T:.....	Item			
SECTION B: SANS 1921-1:2004 (Edition 1): CONSTRUCTION AND MANAGEMENT REQUIREMENTS FOR WORKS CONTRACTS: PART 1 Refer to the SCOPE OF WORK for detail requirements:					
B1	Scope F:..... V:..... T:.....	Item			
B2	Normative references F:..... V:..... T:.....	Item			
B3	Definitions F:..... V:..... T:.....	Item			
B4	Requirements for construction and management F:..... V:..... T:.....	Item			
B4.1	General F:..... V:..... T:.....	Item			
B4.2	Responsibilities for design and construction F:..... V:..... T:.....	Item			
B4.3	Planning, programme and method statements F:..... V:..... T:.....	Item			
Carried forward to collection				R	

		UNIT	QUANTITY	RATE	AMOUNT
B4.4	Quality assurance F:..... V:..... T:.....	Item			
B4.5	Setting out F:..... V:..... T:.....	Item			
B4.6	Management and disposal of water F:..... V:..... T:.....	Item			
B4.7	Blasting F:..... V:..... T:.....	Item			
B4.8	Works adjacent to services and structures F:..... V:..... T:.....	Item			
B4.9	Management of the Works and site F:..... V:..... T:.....	Item			
B4.10	Earthworks F:..... V:..... T:.....	Item			
B4.11	Testing F:..... V:..... T:.....	Item			
B4.12	Materials, samples and fabrication drawings F:..... V:..... T:.....	Item			
B4.13	Equipment F:..... V:..... T:.....	Item			
B4.14	Site establishment F:..... V:..... T:.....	Item			
B4.15	Survey control F:..... V:..... T:.....	Item			
B4.16	Temporary works F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
B4.17	Existing services F:..... V:..... T:.....	Item			
B4.18	Health and safety F:..... V:..... T:.....	Item			
B4.19	Environmental requirements F:..... V:..... T:.....	Item			
B4.20	Alterations, additions, extensions and modifications to existing works F:..... V:..... T:.....	Item			
B4.21	Inspection of adjoining structures, services, buildings and property F:..... V:..... T:.....	Item			
B4.22	Attendance on nominated and selected subcontractors F:..... V:..... T:.....	Item			
	SECTION C: SCOPE OF WORK in accordance with SANS 10403 (The reference to Clauses refer to Table B.1 of SANS 1921-1:2004)				
C1	Certification by recognised bodies - CLAUSE 4.4 F:..... V:..... T:.....	Item			
C2	Agrément certificates - CLAUSE 4.5 F:..... V:..... T:.....	N/A			
C3	Other services and facilities - CLAUSE 4.8 F:..... V:..... T:.....	Item			
C4	Recording of weather - CLAUSE 5.2 F:..... V:..... T:.....	Item			
C5	Management meetings - CLAUSE 5.3 F:..... V:..... T:.....	Item			
C6	Daily records CLAUSE 5.6 F:..... V:..... T:.....	Item			
C7	Bond and guarantees - CLAUSE 5.7 F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
C8	Permits - CLAUSE 5.9 F:..... V:..... T:.....	Item			
C9	Proof of compliance with the law - CLAUSE 5.10 F:..... V:..... T:.....	Item			
SECTION D: SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 (Table A.1)					
D1	Requirements for drawings, information and calculations for which the contractor is responsible CLAUSE 4.1.7 F:..... V:..... T:.....	Item			
D2	The responsibility strategy assigned to the contractor for the works CLAUSE 4.2.1 F:..... V:..... T:.....	Item			
D3	The planning, programme and method statements - CLAUSE 4.3 F:..... V:..... T:.....	Item			
D4	Samples of materials, workmanship and finishes - CLAUSE 4.12.1 F:..... V:..... T:.....	Item			
D5	Fabrication drawings that the contractor is to provide and deliver to the employer - CLAUSE 4.12.2 F:..... V:..... T:.....	Item			
D6	Office for the foreman CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D7	Telephone - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D8	Office for inspector of works - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D9	Telephone in office for inspector of works - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D10	Sheds - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
Carried forward to collection				R	

		UNIT	QUANTITY	RATE	AMOUNT
D11	Provision and erection of signboards - CLAUSE 4.14.6 F:..... V:..... T:.....	Item			
D12	Termination, diversion or maintenance of existing services - CLAUSE 4.17.1 F:..... V:..... T:.....	Item			
D13	Services which are known to exist - CLAUSE 4.17.3 F:..... V:..... T:.....	Item			
D14	Detection apparatus - CLAUSE 4.17.4 F:..... V:..... T:.....	Item			
D15	Additional health and safety requirements - CLAUSE 4.18 F:..... V:..... T:.....	Item			
	SECTION E: SPECIFIC PRELIMINARIES <u>Section E contains Specific Preliminary items which apply to this contract except where "N/A" (Not Applicable) appears against the item.</u>				
E1	PROPRIETARY BRANDED PRODUCTS The contractor shall take delivery of, handle, store, use apply and/or fix all proprietary branded products in strict accordance with the manufacturers' instruction after consultation with the manufacturer's authorised representative. F:..... V:..... T:.....	Item			
E2	OVERTIME 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 Engineer/Principal Agent has specifically authorised in writing, prior to the execution thereof, that costs for such overtime are to be borne by the Employer. F:..... V:..... T:.....	Item			
E3	AS BUILT DRAWINGS The position of construction breaks and the extent of individual concrete pours are to be recorded by the Contractor on the Structural Engineer's drawings and are to be submitted to the Engineer/Principal Agent and the Structural Engineer for their records. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

SECTION E: SPECIFIC PRELIMINARIES		UNIT	QUANTITY	RATE	AMOUNT
E4	SITE INSTRUCTIONS Site Instructions issued on site are to be recorded in triplicate in a Site Instruction book which is to be maintained on site by the Contractor. F:..... V:..... T:.....	Item			
E5	LABOUR RECORD At the end of each week the Contractor shall provide the Engineer/Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all sub-contractors on the works each day. F:..... V:..... T:..... <i>Note: In the event that the contractor fails to satisfy the requirements of this specification, the Employer (Head: Public Works) may apply any of the sanctions provided in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum per calendar day of which the required report has not been submitted.</i>	Item			
E6	PLANT RECORD At the end of each week the Contractor shall provide the Engineer/Principal Agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works. F:..... V:..... T:.....	Item			
E7	NON CESSION OF MONIES The Contractor shall not cede nor assign his rights or claims to any monies due or to become due under this contract. F:..... V:..... T:.....	Item			
E8	SECTIONAL COMPLETION When it is required that the contract be executed in sections or portions, the tenderer shall allow for all costs in this regard as no claim for additional costs will be entertained. F:..... V:..... T:.....	Item			
E9	LOCAL LABOUR It is a general requirement of this contract that persons normally resident in the locality of the works (Local Labour) be given preference for employment on the contract. Provided, however, that should adequate and appropriate Labour not be available within the locality, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ Local Labour. The Contractor shall identify the local community leaders with the purpose of negotiating with them regarding the utilization of Local Labour in the construction process. In this regard, the Contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth. The Contractor shall, in general, maximize the involvement of the local community. F:..... V:..... T:.....	Item			
Carried forward to collection				R	

		UNIT	QUANTITY	RATE	AMOUNT
E10	IMPORT PERMITS AND DUTIES The responsibility for obtaining the necessary import permits shall rest with the successful Tenderer. No foreign exchange will be arranged or provided by the Administration. Tenderers are to allow in their tenders and pay the ordinary levy imposed on imported items in terms of item 196.10 of Part 8 of Schedule No. 1 of the Customs and Excise Act, 1964 with effect from 1 October 1989. F:..... V:..... T:.....	Item			
E11	CONTRACT PRICE ADJUSTMENT PROVISIONS (CPAP) Notwithstanding anything to the contrary contained in the GCC for Construction Works 2010 2nd Edition, this Contract shall only when the Construction Period exceeds 6 months and the Contract sum exceeds R1,000,000,00 be subject to the Contract Price Adjustment Provisions Indices Application Manual for use with P0151 indices (CPAP) (Revised 1 January 2013) as published by Statistics South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works <u>will not accept the submission by Tenderers of lists of additional items.</u> Where this contract is a Lump Sum contract, the contract will be subject to Contract Price Adjustment Provisions (CPAP) only where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings. F:..... V:..... T:.....	Item			
E12	EPWP CONDITIONS AND SPECIFICATIONS 12.1 EMPLOYMENT TARGETS E12.1 a Employment Targets The contractor needs to provide a realistic estimate on the number of jobs that the project has the potential to create throughout the project duration as the project will be implemented using labour intensive construction methods on elements where it is economical and feasible for this construction method. No of jobs to be created = [Contractor to fill in an estimated number] F:..... V:..... T:..... E12.1 b Employment requirements Tenderers are advised that this contract will be subject to the Expanded Public Works Program (EPWP) aimed at alleviating and reducing unemployment. Tenderers must allow for any costs for the employment of unskilled labour as per the requirements of the EPWP program; 1. 60% of unskilled labour to be women 2. 55% of unskilled labour to be youth aged between 18 and 35 years 3. 2% of unskilled labour to be people living with disability 4. 100% Unskilled labour utilised must reside within the boundaries of the Municipality Ward where this contract is executed, with preference to the local community closest or at the walking distance to the contract site. Wherever possible local skilled tradesmen are to be employed on this contract with the view to maximize utilization of local resources. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

	UNIT	QUANTITY	RATE	AMOUNT
E12.1 c Labour rate and payment intervals The contractor should ensure that labour rate paid to unskilled local labour is commensurate to the daily task. When determining the rate, consideration should be given to that EPWP beneficiaries are mostly bread winners in their families, as the program intends alleviating poverty. There should also be consideration that the labour rate promotes creation of expanded number of jobs created and person days of work. Contractors should make endeavours to ensure that labourers, particularly unskilled are remunerated on fortnight basis and prior notification be made should there be a shortfall on their wages. The labour rate for local unskilled shall also be determined in consideration of the location of the project, i.e. for projects implemented in urbanized municipalities will not be the same as that for rural municipalities. F:..... V:..... T:..... 12.2 LABOUR INTENSIVE CONSTRUCTION METHOD E12.2 a Labour Intensive Construction (LIC) method On site there must a person(s) having competency in managing and implementing LIC methods. *Foreman @ NQF Level 4 the Unit Standard on Implementing LIC methods on site. *Site Agent/ Managers @ NQF level 5 the Unit Standard on Manage Labour-Intensive Skills Programme both must be CETA accredited F:..... V:..... T:..... E12.2 b Labour Intensive Construction Method Those parts of the contract to be constructed using Labour Intensive methods will be marked in the BoQ with letter LI (indicating Labour Intensive) against every item so designated. Such works will only be constructed using method so indicated. Reference to be made to Guidelines for the implementation of Labour Intensive Infrastructure projects under EPWP. "Scope of Work in Respect of Work Relating to the Expanded Public Works Programme (EPWP)" F:..... V:..... T:..... E12.3 RECORD KEEPING 12.3.1 Every employer must keep in the project site office the following minutes of site progress minutes; contractors' monthly site progress reports; accurately recorded attendance register; proof of payment as means to verify authenticity of data in the EPWP Beneficiary form submitted with payment certificates. Copies of submitted EPWP beneficiary data forms should also be kept in the site office. F:..... V:..... T:..... 12.3.2 The employer must keep this record for a period of at least three (3) years after the completion of the project in his/her office as the project site office would have been relocated. This should be safely kept for job creation data verifications and periodical audits on projects conducted by National and Provincial Department of Public Works after one (1) or two (2) quarters of submitting captured EPWP Data to the National EPWP coordinating Department. F:..... V:..... T:.....	Item			
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	UNIT	QUANTITY	RATE	AMOUNT
E12.4 EPWP REPORTING as per EPWP DATA FORM At the end of each month as part of site progress report and to be attached to every contractors' progress payment certificate; the contractor shall provide the principal agent & Public Works with a written records, as per EPWP data form; which will be reflecting, beneficiaries full name & surname; ID No and job description of labour employed by main contractor and sub-contractors on site. At the end of each month the contractor must submit the following documents to be attached to the Progress payment certificate: 1. EPWP monthly data collection form 2. Worker monthly payment upload 3. Worker monthly proof of payment i.e 3.1 Acknowledgement of receipt of payment or 3.2 Payslips 3.3 Bank statement highlighted the workers paid 4. Worker monthly training form 5. Monthly attendance register 6. Certified copies of ID's (once off) 7. ID size photos (once off) 8. Proof of UIF 9. Proof of COIDA F:..... V:..... T:..... E12.5 EPWP PROMOTION 12.5.1 EPWP signage board EPWP Program at the project level shall always be promoted through have the projects signage board that embrace EPWP logo at the bottom, correct measurement for this signage board will be provided by the project leader during the site handing over meeting. the standard "HELVETICA MEDIUM" letters are to be used . Professional title to be 10 mm above line . Line thickness to be 8 mm thick . Space between bottom of the line and bottom of the lettering below the line has to be 100 mm. Letter sizes are as follows : Helvetica medium 100 mm black upper case to be for project name and owner . Helvetica medium 75mm black upper case only to be used for professional titles. Project name and owner shall be black lettering on white background. board sizes are as follows : Board to be minimum 2000mm from ground level and to be constructed from reinforced formed chromadek panels minimum 0,6mm thick chromadek. The contractor is responsible for ensuring that the project board remains neatly and safely erected for the full duration including maintenance period, after which the project board and post are to be dismantled and handed to the client in good order. F:..... V:..... T:..... 12.5.2 Branding of labour apparel Contractor & Sub-contractors' labourers shall be provided with EPWP branded Personal Protective Equipment (PPE), reflector vest with EPWP wording at the back is an ideal and cost effective means of promoting program on site. The contractor is then advised to price for both item 17.5.1 and 17.5.2 F:..... V:..... T:..... E12.6 COMMUNITY LIAISON OFFICER (CLO) UTILISATION OF A COMMUNITY LIAISON OFFICER In addition to the requirements of Clause E9, contained in this document; The Contractor shall allow for and pay any and all costs necessary for the engagement of the services of a Community Liaison Officer (CLO) for the full duration of this contract In the interest of providing a sound service to both the community and the Contractor, a CLO may only manage one project at a given time.	Item			
	Item			
	Item			

A CLO will be identified by the local structures of the ward areas and appointed following fair and transparent interviewing process, to be conducted in the presence of local structures and the contractor representative, in order to assist the Contractor in the procurement of any local labour, etc. required for this project. The Contractor is to liaise with the CLO and afford him any assistance needed in ensuring sound working relations with the local community. Key Responsibilities of the CLO are envisaged to include and not necessary be limited to: 1. Assisting local leadership in conducting skills and resources audit which facilitates sourcing labour from within the ward or targeted areas for employment, as required by contractor. 2. Assisting in sourcing labour-only domestic sub-contractors and the procurement of materials from local resources, as required by the contractor. 3. Assisting the contractor by identifying areas of potential conflict and or threats to the project or to stakeholders in the project and recommend appropriate action to the contractor. 4. Assisting contractor and stakeholders in the project in the resolution of any conflict which may arise. 5. Establishing and ensuring that sufficient and open communication channels between the contractor and the work force are maintained. 6. Establish and ensuring that efficient and open communication channels between the contractor and the community are maintained 7. Identifying and reporting to the Contractor regarding issues where communication between stakeholder is necessary, recommend courses of action and facilitate such communications				
Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	8. Assisting the Contractor and the work force in the establishment of grievance procedures and necessary recommendation to the Contractor regarding the grievances and solution thereto. 9. Attending to site meetings and project implementation meetings as required by the Contractor and prepare periodic reports as may be required by the Contractor from time to time. 10. Attending to such other duties which are consistent with the functions of a CLO, as may be required by the Contractor from time to time. Tenderers are to price twice the rate of unskilled local labour rate against this item for any and all costs arising out of compliance with the foregoing and in the event of a Tenderer failing to price against this item or making inadequate financial provision against this item for compliance as aforesaid, then no claim for costs or additional cost incurred will be entertained by the Head: Works F:..... V:..... T:..... E12.7 SKILLS DEVELOPMENT ON SITE Contractor in conforming to the object of EPWP that its beneficiaries need to be capacitated with skills that will render them employable in the future. It is then the responsibility of the Contractor that mandatory life skills are provided to 100% of workforce on site and on the job training to labourers from whom the potential for further development has been identified. The latter is not mandatory to all as it covers technical skills. Contractor should also make provision for the possibility that there might be local youth that will need to be placed on the project with an intention to be provided support towards improving their level of competency and productivity. Contractor shall also provide all necessary on-the-job training to targeted labour to enable such labour to master and advance on techniques required to undertake the work in accordance with requirements of the contract in a manner that does not compromise workers health and safety. F:..... V:..... T:..... E12.8 LABOUR ONLY Sub Contracting for local emerging enterprises Tenderer's are advised that this contract is subject to the Expanded Public Works Programme (EPWP) and the following criteria will apply: <u>African Equity Ownership</u> a) The Tenderer is to allow for 5% of the total value of works to be undertaken by a Priority Population Group. This percentage excludes the costs of employing local unskilled labour. The allocation of this percentage from the Project, the screening of people, the selection of skills, will be for the Contractor to adjudicate. b) The Priority Population Group consists of women, youth and disabled people. c) The Contractor is to give first option for prospective PPG's from the surrounding areas of the Project. Should there be insufficient suitable people fitting the criteria of PPG's, the Contractor may hire people from further afield. This is to be done only after consultation with the Department of Works EPWP Co-ordinator and the Community Liaison Officer (CLO). d) A Mentor is to be employed by the Contractor, in consultation with the Department of Works for the purposes of quality control and liaison between the Contractor and the selected PPG's on site. The mentor will be responsible for ensuring an acceptable level of quality workmanship and that such work carried out by the PPG's is executed within the time frames stipulated. In so far as possible, the Contractor is encouraged to expand the PPG's skills, knowledge and performance levels. F:..... V:..... T:.....	Item			
		Item			
		Item			
	Carried forward to collection			R	

	UNIT	QUANTITY	RATE	AMOUNT
<u>TENDERER'S TO NOTE CONDITIONS</u> a) The contract to be entered into between the Contractor and the PPG's will be a LABOUR ONLY sub-contract. b) The Contractor will be responsible for ensuring that all materials for use by the PPG's in the works are to be on site timeously. The Contractor shall liaise with The Mentor and PPG to determine the nature and extent of materials required and the lead time necessary. c) The Contractor shall be responsible for the overall programming of the Works and he is to allow for monitoring the PPG's programme and progress. d) In conjunction with the Mentor, he is to allow for the supervision and mentoring (where necessary) of the PPG to ensure quality and adherence to standard building practice e) The Contractor is to allow for extra storage facilities on site for the PPG's tools and equipment. f) Basic tools shall be provided by the PPG's and where these are not available; the Contractor will supply him with the necessary tools and equipment and deduct the costs thereof from the interim claims made by the PPG g) Work requiring specialized tools will be provided free of charge by the Contractor with the provision that these be returned upon completion of the Work. <u>CO-ORDINATION</u> The Contractor is to co-ordinate the work of all the PPG's, Sub-Contractors and Nominated Sub- Contractors appointed direct by the Employer in such a manner and at all times as will suit the building programme and he is to allow adequate access, for the PPG's, where required, to carry out their work in an efficient manner as no claims for extras in this connection will be entertained. F:..... V:..... T:..... <u>ATTENDANCE</u> The Contractor may allow for attendance upon the PPG's concerned to execute the work. The Contractor is to allow the PPG's the use of any scaffolding belonging to him while it remains so erected on the site. Where scaffolding is necessary for the use by any PPG and the Contractor has not erected any for his own use or has removed same after his own use, the Contractor shall supply sufficient scaffolding to the PPG to be erected and dismantled by the PPG and returned to the Contractor. This attendance upon PPG's to execute the work is to include for the scaffolding provisions as aforesaid and, in addition, is to include for co-operating to the fullest extent with all the parties, attending on off-loading materials, providing suitable storage for tools and materials used by the PPG's, use of general facilities such as latrines, etc., supply and cost of power, lighting, water and the like. F:..... V:..... T:..... <u>E12.9 EPWP CONTRACT FOR LABOUR</u> It is compulsory that shortly after the contractor and or sub contractor has appointed local labour, the employment contract should be signed by both parties, prior to commencement with works on site. The employment contract forms part of the Ministerial Determination or from the regional EPWP officials. Each contract will lapse at the end of each financial year therefore requiring the Contractor to do a renewal of each contract should the need of employment still exist for that particular labourer. F:..... V:..... T:.....	Item			
	Item			
Carried forward to collection			R	

	UNIT	QUANTITY	RATE	AMOUNT
E12.10 EPWP SCOPE of WORK Note: Contractors are to price any item on the Bill of Quantities having below, bearing in mind that they are regarded as main sources of job creation, whether sub contracted or undertaken by the main contractor. Elements on the scope of work where application of Labour Intensive Construction methods as will indicated with letters (LI) are regarded feasible are as follows; i) Excavating trenches for foundations and any other civil works with the depth not more than 1.5 m ii) All masonry works which include concrete mixing on site; brickwork; plastering; screed works; jointing; etc. iii) Painting, Plumbing, Ironmongery; roof cladding; glazing; tiling; carpentry; flooring; waterproofing; etc. F:..... V:..... T:..... Note: It is a general requirement of this contract that persons normally resident in the ward of the works (local labour) be given preference for employment on the contract. Provided, however, that should adequate and appropriate labour not be available within the ward, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ local labour (Local Sub-contractor(s); Skilled; Semi-Skilled and Unskilled). The contractor shall in consultation with the local community leaders with the purpose of negotiating with them regarding the utilization of local resources in the construction process. In this regard, the contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth as well as families declared as most indigent by War on Poverty/ Sukuma Sakhe program profiling process. The contractor should aim, in general, to maximise the involvement of the local community, however workers from other communities should not exceed 20% of all persons working on the project, where local employees possess skills at level of competency that meet contractors requirements. <u>Payment for the labour-intensive component of the works</u> Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict. <u>Linkage of payment for labour-intensive component of works to submission of project data</u> The Contractor's payment invoices shall be accompanied by labour information for the corresponding period in a format specified by the employer. If the contractor chooses to delay submitting payment invoices, labour returns shall still be submitted as per frequency and timeframe stipulated by the Employer. The contractor's invoices shall not be paid until all pending labour information has been submitted. <u>Applicable labour laws</u> The current Ministerial Determination (also downloadable at www.epwp.gov.za) Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice , shall apply to works described in the scope of work as being labour-intensive and which are undertaken by unskilled or semi-skilled workers. F:..... V:..... T:.....	Item			
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		UNIT	QUANTITY	RATE	AMOUNT
E13	HIV/AIDS AWARENESS Tenderers are to price against the following items for compliance with the SPECIFICATION FOR HIV/AIDS AWARENESS bound into this document (The clauses referred to are those of the Specification for HIV/AIDS)				
E13.1	Provide and maintain a condom dispenser in terms of Clause 5.1a) F:..... V:..... T:.....	Item			
E13.2	Provide and maintain HIV/AIDS awareness posters terms of Clause 5.1b) F:..... V:..... T:.....	Item			
E13.3	HIV /Aids Awareness Programme on Site for not less than 90% of workers inclusive of all direct and indirect costs; Engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme in terms of Clause 5.2.1a) F:..... V:..... T:.....	Item			
E13.4	Arrange for workers to attend the HIV Awareness Programme in terms of Clause 5.2.1b) F:..... V:..... T:.....	Item			
E13.5	Reporting Prepare and attach to claims for payment a brief report in terms of Clause 5.3 (see also HIV/STI Compliance Report included with this document). F:..... V:..... T:..... <i>Note: In the event that the contractor fails to satisfy the requirements of this specification, the employer (Head: Public Works) may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum per calendar day of which the required reports has not been submitted.</i>	Item			
E14	OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 OF 1993 Tenderers are to allow for costs in providing a project specific ' Construction Phase Safety, Health and Environmental Plan' in accordance with "Section 2 - Specification Data associated with SANS 1921-1:2004" clause C4.18 in "Part C3 - Scope of Work" F:..... V:..... T:.....	Item			
E15	NOTICE BOARD, SITE OFFICE, ETC. Tenderers are to allow for the provision and removal of a project notice board and a site office in accordance with the Principal Agent's requirements. F:..... V:..... T:.....	Item			
E16	IMPORTED MATERIALS AND EQUIPMENT Where imported items are listed in the tender documents, the tenderer shall provide all information called for, failing which the price of any such item, material or equipment shall be excluded from currency fluctuations. (<i>Refer to T2.14 - Schedule of Imported Materials and Equipment.</i>) F:..... V:..... T:.....	Item			
E17	CONTRACT DOCUMENTS The drawings issues with these Tender documents do not comprise the complete set but serves as a guide only for tendering purposes and for indicating the scope of works to enable the Tenderer to acquaint him 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 legible to the Tenderer he shall, before submitting his Tender, obtain clarification in writing from the principal agent. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E18	GENERAL PREAMBLES The Document Preambles will be the "ASAQS Model Preambles for Trades – 2008" and is obtainable from the various Regional Office's of the Department of Public Works and shall be read in conjunction with the Bills of Quantities and be referred to for the full descriptions of work to be done and materials to be used. F:..... V:..... T:.....	Item			
E19	TRADE NAMES Wherever a Trade Name for any product has been described in the Bills of Quantities 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. F:..... V:..... T:.....	Item			
E20	EXISTING PREMISES OCCUPIED Refer to Scope of Works Part C3 of this Tender Document for information on the occupation of existing buildings. F:..... V:..... T:.....	Item			
E21	INACCURATE AND DEFECTIVE WORK EXECUTED UNDER PREVIOUS CONTRACT The contractor shall, after taking possession of the site and before commencing the work, check all levels, liners, profiles and the like and satisfy himself as to the dimensional accuracy of all work executed under the previous contract which may affect his work. Should any inaccurate or defective work be found, the contractor shall immediately notify the principal agent in writing requesting his instructions with regard thereto and afford every facility to those rectifying such inaccurate or defective work. F:..... V:..... T:.....	Item			
E22	VIEWING THE SITE IN SECURITY AREAS If the site is situated in a security area and the Tenderer must arrange with the Authorities to obtain permission to enter the site for Tendering purposes. F:..... V:..... T:.....	Item			
E23	COMMENCEMENT OF WORKS IN SECURITY AREAS If the works falls within a security area, the contractor must arrange with the Authorities and give the necessary notices before commencement of the works. Should the contractor fail to make such arrangements, admission to the site may be refused and any additional costs will be for the contractor's account. F:..... V:..... T:.....	Item			
E24	ENTRANCE PERMITS TO SECURITY AREAS If the works fall within a security area, the contractor shall obtain entrance permits for his personnel and workmen entering the area and shall comply with all regulations and instructions which may be issued from time to time regarding the protection of persons and property under control of the Authority. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E25	SECURITY CHECK OF PERSONNEL The principal agent may require the contractor to have his personnel and workmen, or a certain number of them, security classified. In the event of the principal agent requesting the removal of a person or persons from the works for security reasons, the contractor shall do so forthwith and shall thereafter ensure that such person or persons are denied access to the works and the site and/or to any document or information relating to the works. F:..... V:..... T:.....	Item			
E26	PROHIBITION ON TAKING PHOTOGRAPHS In terms of article 119 of the Defence Act, 44 of 1957, it is prohibited to sketch or to take photographs of any military site or installation or any building or civil works thereon or to be in possession of a camera or other apparatus used for taking photographs, except when authorised thereto by or on behalf of the Minister. The same prohibition is also applicable to all Correctional Institutions in terms of article 44.1(e) of the Correctional Services Act 8 of 1959. F:..... V:..... T:.....	Item			
E27	Management of Water Water for Construction purposes must be obtained from alternative water sources (i.e. supply other than water that is produced and distributed by a regulated water service authority from a licenced water treatment works for human consumption), eg dams, rivers, boreholes, springs, rainwater harvesting, recycled sewerage water, etc. The alternative water source shall not be of an inferior quality / standard than that required for construction purposes. The client reserves the right through his agents to test such supplies or request certificates confirming the grade and nature of the water supply. Relevant knowledge of the respective area will be an advantage.				
	Carried forward to collection			R	

SECTION 1

SUMMARY – PRELIMINARY & GENERAL

Collection

	Page No.	Amount	
	1	R	
	2	R	
	3	R	
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	6	R	
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	9	R	
	10	R	
	11	R	
	12	R	
	13	R	
	14	R	
	15	R	
	16	R	
Carried forward to Final Summary		R	

Section No. 1
Preliminary & General
Summary



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF
LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF
EXISTING BALCONIES**

PART C2.3 BILL OF QUANTITIES

Item No		Quantity	Rate	Amount
	<u>BILL NO. 2</u>			
	<u>ALTERATIONS (PROVISIONAL)</u>			
	<u>(CPAP WORK GROUP 102 UNLESS OTHERWISE STATED)</u>			
	The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008'			
	<u>TEMPORARY BARRIERS, SCREENS, ETC</u>			
	<u>Temporary barriers, screens, etc including removal.</u>			
2/1	Dry wall barrier 2700mm high formed of galvanised steel channel section rails and studs covered on one side, with 12,7mm gypsum board panels and finished with two coats interior quality PVA emulsion paint on one side including corners, ends, etc.	m	75	
2/2	Dry wall barrier 3000mm high formed of galvanised steel channel section rails and studs covered on one side, with 12,7mm gypsum board panels and finished with two coats interior quality PVA emulsion paint on one side including corners, ends, etc.	m	75	
2/3	Dry wall barrier 3500mm high formed of galvanised steel channel section rails and studs covered on one side, with 12,7mm gypsum board panels and finished with two coats interior quality PVA emulsion paint on one side including corners, ends, etc.	m	75	
2/4	Security and safety warning tapes and signage to enclose the Works where necessary	Item		
	<u>REMOVAL OF EXISTING WORK</u>			
	<u>Breaking down and removing brickwork including finishes etc (in accordance with Engineers instruction)</u>			
2/5	Half brick wall internally	m2	122	
	<u>Taking down Faggots</u>			
2/6	Taking down faggots from balcony	m2	86	
	Carried Forward		R	
	Bill No. 2 ALTERATIONS			

Brought Forward				R
<u>Taking out doors, windows, etc including thresholds, sills, etc and handing to employer (building up openings elsewhere)</u>				
2/7	Timber single door and frame not exceeding 2,5m2 from half brick wall	No	27	
2/8	Remove existing sunscreens 3990 x 2103mm width overall fixed from one brick wall.	m2	16	
<u>Taking down and removing roofs, floors, ceilings, partitions, etc and cart away unless otherwise described</u>				
2/9	Double roman concrete roof tile	m2	998	
2/10	Corrugated iron roof covering and purlins	m2	257	
2/11	Plasterboard ceilings including timber brandering, insulation, etc.	m2	240	
2/12	Rainwater gutters complete with fixings	m	245	
2/13	Rainwater downpipes complete with fixings	m	13	
2/14	Timber moulded cornices (Provisional)	m	250	
<u>Taking out and removing joinery fittings etc and cart away</u>				
2/15	Rectangular kitchen floor cupboards 1200x 600 x 650mm high.	No	1	
<u>Hacking up/off and removing granolithic, screeds, plaster, etc from concrete or brickwork and preparing surfaces for new screeds, plaster, etc and cart away</u>				
2/16	Vinyl tiles from floors	m2	169	
<u>Hacking up/off and removing ceramic, clay tile floor and wall finishes including removing mortar bed or backing and cart away</u>				
2/17	Ceramic tiles to floors	m2	174	
2/18	Clay tiles to verandah floors.	m2	415	
Carried Forward				R
Bill No. 2 ALTERATIONS				

Brought Forward				R
	<u>Taking out and removing piping, sanitary fittings, etc including disconnecting piping from fittings and making good floor and wall finishes (making good tiling and paintwork elsewhere) and handover to Employer</u>			
2/19	Vitreous china wash hand double basin complete with water supplies and drainage	No	16	
2/20	Vitreous china single wash hand basin complete water supplies and drainage	No	15	
2/21	Vitreous china WC suite complete with water supplies and drainage	No	25	
2/22	male urinal system with drainage	No	4	
2/23	Taking out and remove 5100 x 2105mm steel barglar bars, make good on balcony and set aside for reuse	No	4	
	<u>Repair structural crack in plastered brick or concrete surfaces by hacking out plaster 150mm wide, opening crack completely, repairing underlay brickwork/concrete, fixing chicken wire mesh over crack, filling with "Crackfiller" etc and leave it ready for painting (painting elsewhere measured):</u>			
2/24	<u>Escape staircase prepare cracked surface on the internal wall to receive approved epoxy crack sealer, apply 2 coats of enamel paint, colour to match existing</u>	m2	92	
	<u>Vacuum and clean with system cleaner. Allow to dry as per specialist.</u>			
2/25	On carpet floors	m2	2,277	
	<u>Ceramic tiles. Use approved non-abrasive cleaning agent and mild cleaner.</u>			
2/26	On walls	m2	707	
2/27	On floors	m2	148	
	<u>Red clay tiles. Use an approved non-abrasive cleaning agent and mild cleaner.</u>			
2/28	On floors and landings	m2	415	
Carried Forward				R
Bill No. 2 ALTERATIONS				

Brought Forward				R
	<u>Light blasting for removal of efflorescence.Allow surface to dry well and use a stiff brush.then wash with water.</u>			
2/29	On external face brick walls	m2	636	
	<u>VERANDA FLOOR DRAIN</u>			
2/30	All veranda floor drain must be cleaned and flushed	No	3	
	<u>Fumigation</u>			
	<u>Roof</u>			
2/31	Roof to be fumigated according to SANS 10204:2006 regulations or latest additions	m2	998	
	<u>Cleaning and unblocking of box gutters and downpipes</u>			
2/32	250 x 250 mm Aluminium box gutters in the executive block	m	86	
2/33	Aluminium down pipes complete in the executive block	m	26	
	<u>BUILDING UP OPENING</u>			
	<u>Brickwork in NFP bricks in class II mortar in building up openings.</u>			
2/34	half brick walls. (Provisional)	m2	20	
2/35	One brick walls. (Provisional)	m2	45	
	<u>PREPARATORY WORK TO EXISTING SURFACES</u>			
2/36	Prepare existing veranda floor to receive new carpet tiles (elsewhere measured)	m2	415	
2/37	Strip existing waterproofing and prepare slab to receive new torched on waterproofing (elsewhere measured)	m2	73	
2/38	Prepare underside of balcony slab to receive new finish	m2	86	
	<u>MAKING GOOD OF FINISHES ETC</u>			
2/39	Making good defects in existing screeded floors with "Pavelite"	m2	589	
	Carried Forward			R
	Bill No. 2 ALTERATIONS			

Brought Forward				R
2/40	Floor screeds in patches	m2	7	
2/41	Walls where 110mm thick brick walls are removed	m	26	
2/42	Floors where 110 brick walls removed	m	44	
2/43	Walls in patches	m2	4	
	<u>Making good staircase and landings including balustrades</u>			
2/44	Brush off any loose rust using wire brush, wipe cleaning with methylated spirit, prepare with metal(rust inhibitive primer) and apply 2 coats of acrylic gloss enamel paint.	m2	365	
	<u>Breaking out for and forming openings through brick walls for new doors and frames including necessary precast concrete lintels and making good plaster on one side and into reveals and face brickwork on other side and into reveals and with ? concretethresholds with steel trowelled finish (new doors and frames and making good paintwork elsewhere)</u>			
2/45	Opening 3800 x 3700mm high through one brick wall	No	1	
2/46	Opening for door with steel frame 1350 x 2040mm high overall through one brick wall	No	2	
Carried to Summary				R
Bill No. 2 ALTERATIONS				

Item No		Quantity	Rate	Amount
	<u>BILL NO. 3</u> <u>MASONRY (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 116)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> <u>BRICKWORK</u> <u>Sizes in descriptions</u> Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick <u>Hollow walls etc</u> Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole. Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats "Brixal" bitumen emulsion waterproofing coating. <u>User note:</u> The above preamble generally applies for works in hot and humid coastal areas <u>Face bricks</u> Bricks shall be ordered timeously to obtain uniformity in size and colour <u>Pointing</u> Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc			
	Carried Forward Bill No. 3 MASONARY		R	

Brought Forward

R

BLOCKWORK**Concrete masonry units**

Blocks are to be either solid or hollow modular dense concrete masonry units having a compressive strength of 7 MPa

Wall ties for blockwork

Wall ties shall be polypropylene "Permaties" complying with BS 76377. Ties for hollow walls shall be of sufficient length to allow not less than 75mm of each end to be built into the blockwork. Ties are to be spaced at intervals of not more than 1m in the horizontal direction and not more than 400mm staggered in the vertical direction except at openings, vertical joints or ends of walls where they are to be placed vertically above each other

Blockwork

Blockwork shall comply with SABS 0145 "Concrete Masonry Construction"

Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course of the external skin of hollow walls shall be left open as a weep hole

Standard complementary blocks

Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc to solid and hollow walls and for bonding as necessary

DECORATIVE BLOCKS

Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour

Carried Forward

R

Bill No. 3
MASONARY

Brought Forward			R
<u>SAMPLES</u>			
Samples of all masonry building units, except those for walls described as "load bearing", shall consist of a minimum of 6 units. Samples of building units to be used in walls described as "load bearing" shall consist of 30 units from every 30 000 units delivered to site			
<u>BRICKWORK IN FOUNDATIONS</u>			
<u>(PROVISIONAL)</u>			
<u>Brickwork of NFP bricks in class II mortar</u>			
<u>Load bearing brickwork of 14MPa bricks in class II mortar to SABS 0164</u>			
3/1	Half brick walls	m2	51
3/2	One brick walls	m2	19
<u>BRICKWORK SUNDRIES</u>			
<u>Brickwork sundries</u>			
3/3	230mm Brick cills set sloping and slightly projecting or equally approved match to existing one.Colour to Architect	m	69
3/4	10 x 150mm wide slate grey fibre-cement cills in single lengths,set flat and slight or equally approved match to existing one. Colour to Architect.	m	69
Carried to Summary			R
Bill No. 3 MASONARY			

Item No	Quantity	Rate	Amount
<u>BILL NO. 4</u>			
<u>WATERPROOFING (PROVISIONAL)</u>			
<u>(CPAP WORK GROUP NO. 120)</u>			
The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008'			
<u>SUPPLEMENTARY PREAMBLES</u>			
All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply			
Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director			
<u>Waterproofing</u>			
Waterproofing of roofs, basements, etc shall be laid under a ten year guarantee. Waterproofing to roofs shall be laid to even falls to outlets etc with necessary ridges, hips and valleys. Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn-downs			
<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>			
<u>Apply bitumein primer. Apply one layer of 4mm torch on waterproofing membrane finished with 2 coats of bitumen aluminium paint done to manufactures specification.</u>			
4/1	On concrete roof slab	m2	73
<u>Protective stone dressing balast</u>			
4/2	20-30mm round stone ballast	m2	73
Carried to Summary			R
Bill No. 4 WATERPROOFING			

Item No		Quantity	Rate	Amount
<u>BILL NO. 5</u>				
<u>ROOF COVERINGS ETC (PROVISIONAL)</u>				
<u>(CPAP WORK GROUP NO. 124)</u>				
The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008'				
<u>SLATES</u>				
<u>Double roman concrete tiles 420 x 332mm laid straight bond to flat slope 35 degrees, fixed to battens at 354mm battens centre on and including Marley or equal approved non permeable undertile membrane</u>				
5/1	Roof covering with pitch not exceeding 25 degrees	m2	998	
5/2	Ridge capping 550mm girth,to match roofing tiles bedded and pointed in 1:3 cement mortar tinted to match tile colour	m	22	
5/3	Hip capping 550mm girth, to match roofing tiles bedded and pointed in 1:3 cement mortar tinted to match tile colour	m	29	
5/4	Hip finial	No	4	
5/5	Angle intersection of ridge, with hip including soaker	No	2	
5/6	Purpose made tile to end of ridge bedded and pointed in 1:3 cement mortar tinted to match tile colour (Provisional)	No	2	
<u>PROFILED ROOF METAL SHEETING AND ACCESSORIES</u>				
<u>Metal Roof Sheeting</u>				
5/7	Brownbuilt 0.6mm klip cover metal roof sheeting on 175x50mm purlins.	m2	257	
5/8	Raking cutting to roof sheeting (both sides measured)	m	29	
<u>ROOF AND WALL INSULATION</u>				
Carried Forward				R
Bill No. 5 ROOF COVERING				

Item No		Quantity	Rate	Amount
	<u>BILL NO. 6</u> <u>CARPENTRY AND JOINERY</u> <u>(PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 126)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director All timber roof trusses including nail plated trusses and bolted tusses with lapped members must comply with SABS 0243 ; The design manufacture and erection of timber truss. The contractor shall submit letters ref TR.1 and TR.2 duly signed by the truss system Engineer, in respect of roof structure <u>Particle board:</u> Particle board shall comply with the following specifications: a) SABS 1300 Particle board: exterior and flooring type b) SABS 1301 Particle board: interior type <u>Joinery:</u> 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			
	Carried Forward Bill No. 6 CARPENTRY & JOINERY		R	

Brought Forward			R
<u>Fixing</u> Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete <u>Decorative laminate finish:</u> Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish <u>ROOF CONSTRUCTION ETC</u> <u>Wrought softwood grade CCA H2</u>			
6/1	38 x 38mm Battens for concrete tile roof covering	m	1,224
<u>DOORS ETC</u> <u>Semi-solid with hardboard facing 13 x 44mm hardwood edge on lock and hinge side</u>			
6/2	762 x 2032 High x 44mm thick (TYPE 1)	No	22
<u>Solid with hardboard facing 13 x 44mm hardwood edge on lock and hinge side</u>			
6/3	1212 x 2032 High x 44mm Thick (TYPE3)	No	1
<u>FIRE DOORS (Provisional)</u> <u>44mm Class E Semi solid door with hardwood facing and 13 x 44mm hardwood edges</u>			
6/4	762 x 2032 High (TYPE 1)	No	13
<u>44mm Class B Solid laminated double Fire door with hardboard facing</u>			
6/5	2132 x 900 x 44mm Solid hardwood french door with 8 panel lite clear safety glass (elsewhere measured) TYPE 2	No	1
6/6	1212 x 2032 High TYPE 4	No	16
<u>FRAMED FRAMES ETC</u>			
Carried Forward			R
Bill No. 6 CARPENTRY & JOINERY			

Brought Forward			R
<u>Wrot meranti</u>			
6/7	102 x 69mm Rebated frame for 813 x 2032mm high door	No	6
6/8	100 x 60mm with 44mm rebated frame for 760 x 2032mm high door.	No	20
6/9	120x60mm rebated frame for 915 x2134mm high door. (Provisional)	No	2
6/10	120x60mm double rebated frame for 2032 x1212mm high door. (Provisional)	No	2
6/11	100x60mm rebated frame for 2032 x762mm high door.	No	22
<u>FITTINGS</u>			
<u>32mm thick Surinno post formed solid surface counter top,sealed between wall and top with clear silicone sealant. Counter top to be fixed to wall with hollow section 50 x 50 x 2.5mm painted mild steel brackets anchored to brick wall by means of 8mm expansion bolts. Cut steel sections to be sealed off by means of a plastic plug, or neatly welded and ground smooth to receive 3 coats of paint. Paint colour to later specification by Architect . All work to be as Architect's drawing No. 103-001 Rev.00</u>			
6/12	Floor cupboard 1120 x 635mm with 38mm post formed formica on particle board including 4 drawers on hidden roller hinges, all to the Architects drawing no.059789/2016/D-C9	No	1
6/13	Glazed top hung double door cabinet 1120 x 635mm with 38mm solid post formed formica on particle board including 4 drawers on hidden roller hinges, all to the Architects drawing no.059789/2016/D-C9	No	1
6/14	Double sink floor cupboard 1191 x 575mm with 32mm post formed formica, sink cut, 4 drawers, rollers, shelves, all as described on Architect's drawing no. 059789/2016/D-C9	No	2
6/15	L Shaped floor cupboard 2438 x 1372mm overall with 38mm post formed formica on particle board including 4 drawers on hidden roller hinges, all to the Architects drawing no.059789/2016/D-C9	No	1
Carried Forward			R
Bill No. 6 CARPENTRY & JOINERY			

Brought Forward			R
<u>COUNTER</u>			
<u>32mm thick Formica post formed solid surface counter with panelyte top, sealed between wall and top with clear silicone sealant. Counter top to be fixed to wall with hollow section 50 x 50 x 2.5mm painted mild steel brackets anchored to brick wall by means of 8mm expansion bolts. Cut steel sections to be sealed off by means of a plastic plug, or neatly welded and ground smooth to receive 3 coats of paint. Paint colour to later specification by Architect . All work to be as Architect's drawing 059789/2016/D-C9</u>			
6/16	Counter top size 1200 x 635mm wide overall	No	1
<u>SKIRTINGS</u>			
<u>Wrought hardwood</u>			
6/17	100 x 22mm PAR square edge hardwood skirting with 15 degrees chamfer to the top (PROVISIONAL)	m	1,364
6/18	19 x 69mm Skirting with 19mm quadrant bead	m	177
<u>EAVES, VERGES, ETC</u>			
<u>"Everite Nutec" pressed fibre cement</u>			
6/19	15 x 225mm Fascias including galvanised steel jointing strips and 38 x 38mm softwood rafter filler piece 150mm high at 1200mm centres	m	168
6/20	80 x 200mm medium density fibre cement barge board, with aluminium H-Profile barge board joiners	m	19
Carried to Summary			R
Bill No. 6 CARPENTRY & JOINERY			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 7</u> <u>CEILINGS, PARTITIONS AND ACCESS FLOORING (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 129)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director <u>Descriptions:</u> Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere <u>NAILED UP CEILINGS</u> <u>6mm NUTEC ceiling with H-Type joints painted with Plascon polvin white paint</u>			
7/1	Ceilings including 38 x 50mm (on edge) sawn softwood branderling at 400mm centres fully skimmed <u>ACOUSTIC MINERAL FIBRE CEILING</u>	m2	393	
	Carried Forward		R	
	Bill No. 7 CEILINGS, PARTITION AND ACCESS FLOORING			

	Brought Forward			R	
	<u>600 x 600 x 15mm sand finish square edge acoustic mineral fibre ceiling tiles laid on pre painted exposed tee grid system, with aluminium shadow mould cornice trims.</u>				
7/2	Suspended ceiling not exceeding 1m deep below	m2	965		
	<u>"Ornamental Mouldings" or other and approved</u>				
7/3	Aluminium shadow mould cornice trims.	m	1,144		
	<u>PARTITIONS ETC</u>				
	<u>"Rhino board" 12.5mm partitioning with and including "Isover 63 x 600 x 1200mm "Cavitybatt" insulation, the wall shall comprise 62.5mm 'Ultrasteel' studding formed of top and bottom tracks with vertical studs at maximum 400mm 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 are to be butt jointed and finished with 50mm wide scrim tape and "Readymix D" jointing compound all in accordance with the manufacturer's instructions.</u>				
7/4	Ceramic urinal partition 705mm x 400mm Duravite or equally approved.	m	31		
7/5	Extra over partition 3300mm high for vertical abutment	No	19		
7/6	Extra over partition 3300mm high for corner	No	11		
	Carried to Summary			R	
	Bill No. 7				
	CEILINGS, PARTITION AND ACCESS FLOORING				

Item No		Quantity	Rate	Amount
	<u>BILL NO. 8</u> <u>FLOOR COVERINGS, PLASTIC LININGS, ETC (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 130)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLE</u> P1 Samples - with reference to all items and colour schemes, samples of all items are to be presented for approval prior to any bulk orders. Please take note that most items will have at least six weeks delivery period, these approvals will only take place at dates of site meetings, the samples need to be approved well in advance to avoid any delays with the lead time on orders. All samples must remain in the sample room for the duration of the contract period. P2 Mock up rooms - all wall and floor finishes must be prepared in advance as part of a mock up room/rooms and at least a 100m2 of vinyl flooring will serve as a sample floor NOTE: Where applicable, all expansion joints in screed to be in accordance with vinyl sheet expansion detail. Complete with EJC50 polyspan joint cover or equal approved. Strip and welding rod colours to Architect's approval Where applicable, all expansion joints in screed to be in accordance with vinyl sheet expansion detail. Complete with EJC65 polyspan joint cover or equal approved. Strip and welding rod colours to Architect's approval Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director			
	Carried Forward Bill No. 8 FLOOR COVERING		R	

Brought Forward				R
All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply				
<u>FLOOR COVERINGS</u>				
<u>300 x 300 x 2.5mm Semi-flexible vinyl tiles laid with welded joints</u>				
8/1	On floors	m2	187	
<u>New Carpet floor 500 x 500 x9mm " Nexus Berber Point 920" carpet tiles with (bitumen backing) or equally approved laid in checker pattern including 8mm brass straight edge at door threshold.</u>				
8/2	On floors	m2	415	
<u>POLISH, SEALERS, ETC</u>				
<u>Polish, sealers, etc</u>				
8/3	Strip, clean and apply three coats non-slip acrylic emulsion floor dressing buffed to an approved finish	m2	187	
Carried to Summary				R
Bill No. 8 FLOOR COVERING				

Item No		Quantity	Rate	Amount
	<u>BILL NO. 9</u> <u>IRONMONGERY (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 132)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> <u>Proprietary items</u> Where applicable the manufacturers' names or product catalogue titles are given in sub-headings preceding the items Prices are to be based on the specific products/articles specified. If tenderers wish to offer alternative products/articles for certain items, these items are to be clearly marked and the alternative specification given with supporting brochures etc clarifying the features of the products/articles offered On request returnable samples are to be provided to the principal agent for consideration <u>Finishes to ironmongery</u> Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list: BS Satin bronze lacquered CH Chromium plated SC Satin chromium plated SE Silver enamelled GE Grey enamelled AS Anodised silver AB Anodised bronze AG Anodised gold ABL Anodised black PB Polished brass PL Polished and lacquered PT Epoxy coated SD Sanded <u>HINGES, BOLTS, ETC</u> <u>"Solid" or equally approved</u> 9/1 WC deadlocks indicator with 79mm turn knob.Doma or equally approved. No 6 9/2 (100 x 76 x 2mm) x2 s/s sinkless hinges. No 26 <u>"EN-SUITE" LOCKS</u>			
	Carried Forward		R	
	Bill No. 9 IRONMONGERY			

Brought Forward			R
<u>"Union" or equally approved</u>			
The following locks are to be suitable for master and grand master key operation			
9/3	Three lever lock set, SABS approved (chrome), with satin chrome door arch handle on plate or equally approved match the existing one	No 26	
9/4	Union 37651 helping hand indicator bolt.	No 4	
<u>PUSH PLATES AND KICKING PLATES</u>			
<u>"Union" or equally approved</u>			
<u>BATHROOM FITTINGS</u>			
9/5	RODX672 Franke toilet roll holder or equally approved	No 26	
9/6	RODX611 Franke toilet roll holder	No 4	
9/7	STRX611 Franke Sanitary towel dispenser or equally approved	No 26	
9/8	STRX625 Franke soap dispenser <u>or equally approved</u>	No 3	
9/9	CHRX630 Franke electronic towel dispenser <u>or equally approved</u>	No 3	
9/10	BS610 Franke waste container, perforated, wall mounted or equally approved.	No 3	
9/11	CNTX BR Franke straight grab bar <u>or equally approved</u>	No 5	
9/12	CNTX600 Franke x 3 straight grab bar <u>or equally approved</u>	No 15	
9/13	CNTV450 Franke straight grab bar <u>or equally approved</u>	No 5	
Carried Forward			R
Bill No. 9 IRONMONGERY			

Item No		Quantity	Rate	Amount
	<u>BILL NO.10</u> <u>METALWORK (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 136)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> Descriptions of bolts shall be deemed to include nuts and washers Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described <u>WELDED SCREENS, GATES, BURGLAR BARS, ETC</u> <u>10mm Hot dipped galvanised steel round bar type NBP1 burglar bars to suit small pane casement type steel windows</u> <u>GALVANISED STEEL STAIRS</u> 10/1 8mm "Vastrap" plate continuous treads, risers and landing including all required fixings, bolts, etc m2 19 <u>STEEL BALUSTRADES</u> <u>Hot dipped galvanised Balustrade</u> 10/2 50mm diameter x 2mm thick handrail, 50x50x5mm bottom and top rail and 10x10 solid vertical bars at 100mm centres m 39 <u>ALUMINIUM SUNSCREENS</u>			
	Carried Forward		R	
	Bill No. 10 METALWORK			

Brought Forward			R
<u>Aluminium sunscreens/or cantilever hanging must be to Engineers Approval.</u>			
10/3	Powder coated aluminium plate +/-50mm, Fixed to wall with 4No.M16 chemical anchors on base plate. Powder coated extruded aluminium elliptical fin blade at varying angles, +/-300L & BT(mm) Fitted between flat plates. Powder coated aluminium rod round bars, +/-30mm.Fitted between flat plates Powder coated aluminium 300H x 20T(mm) base plate.	m2	561
<u>Aluminium window frame</u>			
10/4	5100 x 2105mm Powder coated aluminium window frame. Colour to match existing.	No	11
10/5	3096 x 2105mm Powder coated aluminium window frame.Colour to match existing.	No	3
10/6	2367 x 2105mm Powder coated aluminium window frame.Colour to match existing	No	1
10/7	2546 x 2105mm Powder aluminium window frame. Colour to match existing.	No	1
10/8	2351 x 2105mm Powder coated aluminium window frame.Colour to match existing.	No	1
10/9	2489 x 2105mm Powder coated aluminium window frame.Colour to match existing.	No	1
10/10	2470 x 2105mm Powder coated aluminium window frame.Colour to match existing.	No	1
10/11	3096 x 2105mm Powder coated aluminium window frame.Colour to match existing.	No	2
<u>Steel Doors</u>			
10/12	2032 x 762 steel door	No	13
10/13	2132 x1212 steel door	No	13
10/14	2132 x 900 steel door	No	1
Carried to Summary			R
Bill No. 10 METALWORK			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 11</u> <u>PLASTERING (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 142)</u> All SABs Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director <u>PRICES</u> The prices of mouldings, weathering, skirtings, labours, etc. shall include for forming mitres, stops, etc. unless otherwise described. The prices of granolithic described as with grooves forming panels, shall include for lining into panels not exceeding 20m ² in area with the length of any panel not exceeding 20m ² in area with the length of any panel not exceeding 4.5m with v-joints and where described as with margins, shall include for steel trowelled margins generally 100mm wide at the perimeters of areas. The prices of all rendering shall include for working around pipes, balusters, etc. Rates for plaster are to include for all filling to and working around electrical conduits, etc., prior to plastering. <u>SPECIALIST FLOORING</u> <u>Polyurethane screed</u> <u>SCREEDS</u> 11/1 Self levelling screed m ² 416 <u>EXTERNAL PLASTER</u> <u>One coat cement plaster on brickwork with a wood float smooth finish</u> 11/2 On walls m ² 19 Carried Forward R Bill No. 11 PLASTERING			

[illegible]

Item No		Quantity	Rate	Amount
	<u>BILL NO. 13</u>			
	<u>PLUMBING AND DRAINAGE</u>			
	<u>(PROVISIONAL)</u>			
	<u>(CPAP WORK GROUP NO. 145 & 146)</u>			
	The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008'			
	<u>RAINWATER DISPOSAL</u>			
	<u>0.6mm "Alugutter" or equally approved standard 127mm OG profile eaves gutter in long lengths fixed by means of pressed aluminium concealed hanger brackets at 600 to 750mm centres complete with any necessary expansion joints</u>			
13/1	127 x 96mm Eaves gutters with brackets fixed to fascias to match the existing one	m	245	
13/2	76mm Diameter rainwater pipes with brackets plugged to match existing one	m	181	
13/3	Extra over eaves gutter for stopped end	No	4	
13/4	Extra over eaves gutter for angle	No	8	
13/5	Extra over eaves gutter for outlet for 76mm rainwater pipe	No	14	
13/6	Extra over 76mm rainwater pipe for bend	No	14	
13/7	Extra over 76mm rainwater pipe for shoe	No	14	
	<u>"Franke" stainless steel or other and approved</u>			
13/8	Stainless steel single centre bowl drop-in sink size 600mm x 1200mm. Bowl size 610 x 460 x 230mm deep with overflow, manufactured in grade 304 (18/10) stainless steel. Tap to be 15mm 102CP demand bib tap. All in accordance to relative SANS	No	3	
13/9	Vanity whb. ceramic fireclay oval self-rimming drop-in vanity basin, 595x455mm with three semi-punched tapholes, and chain stay hole through the centre semi-punched taphole. Colour white. Cameo or equally approved.	No	15	
	Carried Forward			
	Bill No. 13 PLUMBING AND DRAINAGE			
			R	

Brought Forward			R
13/10	WC.Complete dual flush close-couple bottom in let Bibo toilet mechanism.An universal dual flush mechanism, front flush. Complete with bottom inlet valve & all seals couplers.	No	23
<u>"Charlog Plastics" or other and approved</u>			
13/11	Wall hung urinal.Dry waterless air trap and fixing included.Colour white. Duravit or equally approved	No	5
13/12	Paraplegic WC. Atlas raised close-coupled paraplegic pan including cistern mechanism & seat.Ceramic.Colour white.Lecico or equally approved.	No	8
<u>TRAPS ETC</u>			
<u>uPVC</u>			
13/13	Touch-free,electronic control pillar tap,chrome.Cobration-Cobra or equally approved. Full adjustment remote control.Cobration-Cobra or equally approved.	No	11
<u>TAPS, VALVES, ETC</u>			
13/14	Regulating valve	No	14
13/15	15mm Chromium plated raised wall mounted tap code GRO-36273000 including mounting box code GRO-3633700	No	1
<u>Chromium Plated</u>			
13/16	15mm Chromium plated paraplegic taps	No	8
<u>Toilet and urinal flush valves</u>			
13/17	"Cobra Watertech" or equilly approved Flush master junior FJ4.203 toilet flush valve	No	23
13/18	"Cobra Watertech" or equally approved Flush master junior FJ8.102 urinal flush valve	No	5
<u>ELECTRIC WATER HEATERS</u>			
Carried Forward			R
Bill No. 13 PLUMBING AND DRAINAGE			

Brought Forward			R	
<u>Electrical water heaters</u>				
13/19	"Zip hydroboil" or equally and approved, model 7.5 /45, 2,5L boiling water unit with stainless steel finish mounted 300mm above the sink bowl. Overflow to discharge into the sink. Including one "cobra" fullway ballcock code 1075-15 fitted to inlet pipe.	No	1	
<u>TESTING</u>				
13/20	Allow for testing all water supplies, and Fire Services to the satisfaction of the Technical Director. All detective work is to be taken out and replaced at the Contractor's expense and the whole re-tested until found satisfactory		Item	
Carried to Summary			R	
Bill No. 13 PLUMBING AND DRAINAGE				

Item No	Quantity	Rate	Amount
<u>BILL NO. 14</u>			
<u>GLAZING (PROVISIONAL)</u>			
<u>(CPAP WORK GROUP NO. 150)</u>			
The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008'			
<u>BILL NO. 16</u>			
<u>SUPPLEMENTARY PREAMBLE</u>			
All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply			
Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director			
<u>'Franke' model MH600R chronos reflective polished surface mirror or equal approved with concealed fixing installed strictly manufactures specifications.</u>			
14/1	CHR601 Frank x2 mirror	No 6	
14/2	CHRH601 Frank x1 mirror	No 3	
<u>GLAZING TO WOOD WITH PINNED-ON BEADS (BEADS ELSEWHERE)</u>			
<u>6mm Lite safety glass</u>			
14/3	Panes exceeding 0,1m ² and not exceeding 0,5m ² (Provisional)	m2 7	
14/4	Panes exceeding 0,5m ² and not exceeding 2m ² (Provisional)	m2 102	
14/5	Panes exceeding 14m ² and not exceeding 16m ² (Provisional)	m2 96	
Carried to Summary			R
Bill No. 14 GLAZING			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 15</u> <u>PAINTWORK (PROVISIONAL)</u> <u>(CPAP WORK GROUP NO. 152)</u> The Tenderer is referred to the relevant Clauses in the separate document ' Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLES</u> Supplementary Preamble: 1. All SABS Specifications referred to in this document shall be deemed to be omitted and the redesigned and renumbered 'South African National Standards' (SANS) shall apply <u>SUBSTRATE REQUIREMENTS FOR RESIN FLOORING SYSTEMS (PROS-TRUCT).</u> 1. Surface finish required for the application of resin flooring systems should be a minimum of 20mPa cured concrete or screed laid true to line and level, be clean and dry, free of laitance and have a single pass steel trowel finish. <u>PURE CEMENT MUST NOT BE USED</u> as a final finish to the screed. The minimum screed thickness to be 40mm. No concrete curing membranes to be used. 2. The use of products such as cretestone, pavelite and other gypsum based products should not be used as levelling compounds as these are weak and will lead to disbondment of the resin finish. 3. Maximum moisture content of the concrete or screed is not to exceed 4% as measured with a moisture meter. Provided there is good ventilation and warm weather, a 40mm screed should dry sufficiently in 8 to 10 days. A 100mm + concrete generally requires 28 days to cure sufficiently. Where trade names are given in the following items, the materials used shall be of the make and type specified, or other approved by the Director			
	Carried Forward Bill No. 15 PAINTING		R	

Brought Forward			R	
<u>PAINTWORK ETC TO PREVIOUSLY PAINTED WORK</u>				
Previously painted plastered surfaces				
Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth				
Previously painted metal surfaces				
Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal				
Previously painted wood surfaces				
Surfaces shall be thoroughly cleaned down. Blistered or peeling paint shall be completely removed and cracks and crevices shall be primed, filled with suitable filler and finished smooth				
<u>ON PLASTER</u>				
<u>Painted walls.Prepare surface.Apply water-based multi-surface primer.Apply x2 Plascon "wall &all" or equally approved.Colour to Architect.</u>				
15/1	On internal walls	m2	7,834	
<u>Prepare surface apply approved wood primer,apply x2 coats Plascon wall & all or equally approved.Colour to Architect.</u>				
15/2	On existing doors	m2	762	
15/3	On existing door frames	m2	322	
<u>Contractor must test to determine the original finish with denatured alcohol.Prepare surface to receive x2 coats of original clear finish.</u>				
15/4	On existing doors	m2	57	
15/5	On existing door frames	m2	13	
<u>PAINTWORK, ETC. TO NEW WORK</u>				
Carried Forward			R	
Bill No. 15 PAINTING				

Brought Forward			R
<u>ON PLASTERED SURFACES</u>			
<u>Apply water-based multi-surfaced primer.Apply x2 Plascon "Wall & All" or equally approved.Colour to Architect.</u>			
15/6	On internal plastered walls	m2	698
15/7	On external plastered walls	m2	19
<u>ON PLASTER BOARD</u>			
<u>Prepare surface.Apply water-base multi-surface primer.Apply x2 coats of "Wall &All" or equally approved.Colour white</u>			
15/8	On ceilings and cornices	m2	750
<u>ON SMOOTH CONCRETE</u>			
<u>Prepare to receive an approved palster bonding.Apply Gyproc Rhinolite multipurpose/Creatastone minimum 3mm(or equally approved).Apply x2 coats of approved acrylic paint.Colour white</u>			
15/9	On ceilings and cornices(soffits)	m2	2,418
<u>ON METAL</u>			
<u>Remove peeling paint with approved all purpose paint remover,treat rust with approved treatment,clean with waterbase degreaser,apply approved metal primer,apply x2 coats waterbased enamel paint,all to manufacture specs,colour to Architect</u>			
15/10	Window steel frames	m2	673
<u>Clean surface with approved aquasolve degreaser.Prime with approved etch primer.Apply x2 coats of solvent bases paint.Plascon metal care or equally approved.Colour to Architect.</u>			
15/11	Aluminium window frames	m2	360
Carried Forward			R
Bill No. 15 PAINTING			

	Brought Forward		R	
	<u>Remove peeling paint with approved all purpose paint remover,treat rust with approved treatment.Clean with waterbase degrease,apply approved metal primer,apply x2 coats of waterbased enamel paint,all to manufactures specs.Colour to Architect</u>			
15/12	On steel door frames	m2	2	
	<u>ON WOOD</u>			
	<u>One coat Dark Mahogany Stain, one coat Plascon Woodcare Ultra Varnish (X33/X44) thinned 20% with mineral turpentine (AZH1) by volume. Allow 6 hours to dry. Sand slightly with 220 grit paper to denib. Apply two further coats of Plascon Woodcare Ultra Varnish (X33/X44) unthinned allowing 6 hours of drying between coats or similar approved</u>			
15/13	Skirtings, rails, etc not exceeding 300mm girth (PROVISIONAL)	m	1,364	
	<u>Prepare surface apply approved wood primer,apply x2 coats Plascon wall & all or equally approved.Colour to Architect.</u>			
15/14	On new doors	m2	71	
15/15	On new door frames	m2	32	
	<u>Contractor must test to determine the original finish with denatured alcohol.Prepare surface to receive x2 coats of original clear finish.</u>			
	<u>ON SOFFIT</u>			
	<u>Concrete soffit finish</u>			
15/16	Apply approved oil base primer. Apply 2 coats of approved acrylic paint.	m2	627	
	Carried to Summary		R	
	Bill No. 15 PAINTING			

Brought Forward				R	
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-2 (E) (GROUND FLOOR BLOCK C)</u>					
18/3	Supply	No	1		
18/4	Install	No	1		
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-3 (E) (GROUND FLOOR BLOCK C)</u>					
18/5	Supply	No	1		
18/6	Install	No	1		
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-4 (E) (FIRST FLOOR BLOCK C)</u>					
18/7	Supply	No	1		
18/8	Install	No	1		
<u>Sub Distribution Board for Non-essential Supply as specified on Drawing no. DB-5 (E) (FIRST FLOOR BLOCK C)</u>					
18/9	Supply	No	1		
18/10	Install	No	1		
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-6 (E) (THIRD FLOOR BLOCK C)</u>					
18/11	Supply	No	1		
18/12	Install	No	1		
<u>Sub Distribution Board for Non-essential Supply as specified on Drawing no. DB-7 (E) (THIRD FLOOR BLOCK C)</u>					
18/13	Supply	No	1		
18/14	Install	No	1		
Carried Forward				R	
Bill No. 18 Electrical Installation					

Brought Forward				R
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-8 (E) (GROUND FLOOR EXECUTIVE BLOCK BLOCK)</u>				
18/15	Supply	No	1	
18/16	Install	No	1	
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-9 (E) (FIRST FLOOR EXECUTIVE BLOCK BLOCK)</u>				
18/17	Supply	No	1	
18/18	Install	No	1	
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-10 (E) (FIRST FLOOR EXECUTIVE BLOCK BLOCK)</u>				
18/19	Supply	No	1	
18/20	Install	No	1	
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-10 (E) (FIRST FLOOR EXECUTIVE BLOCK BLOCK)</u>				
18/21	Supply	No	1	
18/22	Install	No	1	
<u>Sub Distribution Board for Essential Supply as specified on Drawing no. DB-11 (E) (SECOND FLOOR EXECUTIVE BLOCK BLOCK)</u>				
18/23	Supply	No	1	
18/24	Install	No	1	
18/25	<u>The supply, installation, connecting, testing and commissioning of 11 of 15KVA watt 230 phase UPS with 30 minutes battery back up, spike and lighting protected for the uninterrupted power supply to the offices</u>	No	11	
<u>MAINS CABLING WIRING</u>				
<u>LOW VOLTAGE CABLES</u>				
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
<u>The supply and installation in horizontal ducting, drawn through cable sleeve in trench or on cable tray and sleeves)</u>				
<u>95mm² x 4 core ECC KIOSK-1(E)</u>				
18/26	Supply	m	200	
18/27	Install	m	200	
<u>Termination for 95mm² x 4 core cable</u>				
18/28	Supply	No	16	
18/29	Install	No	16	
<u>70mm² x 4 core ECC DB-2 (E)</u>				
18/30	Supply	m	300	
18/31	Install	m	300	
<u>Termination for 70mm² x 4 core cable</u>				
18/32	Supply	No	8	
18/33	Install	No	8	
<u>70mm² x 4 core ECC DB-3 (E)</u>				
18/34	Supply	m	300	
18/35	Install	m	300	
<u>Termination for 70mm² x 4 core cable</u>				
18/36	Supply	No	8	
18/37	Install	No	8	
<u>70mm² x 4 core ECC DB-4 (E)</u>				
18/38	Supply	m	60	
18/39	Install	m	60	
<u>Termination for 70mm² x 4 core cable</u>				
18/40	Supply	No	8	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R	
18/41	Install	No	8		
	<u>50mm² x 4 core ECC DB-5 (E)</u>				
18/42	Supply	m	60		
18/43	Install	m	60		
	<u>Termination for 50mm² x 4 core cable</u>				
18/44	Supply	No	8		
18/45	Install	No	8		
	<u>25mm² x 4 core ECC DB-12 (E)</u>				
18/46	Supply	m	60		
18/47	Install	m	60		
	<u>Termination for 25mm² x 4 core cable</u>				
18/48	Supply	No	8		
18/49	Install	No	8		
	<u>95mm² x 4 core ECC DB-7 (E)</u>				
18/50	Supply	m	60		
18/51	Install	m	60		
	<u>Termination for 95mm² x 4 core cable</u>				
18/52	Supply	No	16		
18/53	Install	m	16		
	<u>95mm² x 4 core ECC DB-8 (E)</u>				
18/54	Supply	m	200		
18/55	Install	m	200		
	<u>Termination for 95mm² x 4 core cable</u>				
18/56	Supply	No	16		
18/57	Install	No	16		
Carried Forward				R	
Bill No. 18 Electrical Installation					

Brought Forward				R	
	<u>95mm² x 4 core ECC DB-9 (E)</u>				
18/58	Supply	m	200		
18/59	Install	m	200		
	<u>Termination for 95mm² x 4 core cable</u>				
18/60	Supply	No	16		
18/61	Install	No	16		
	<u>70mm² x 4 core ECC DB-10 (E)</u>				
18/62	Supply	m	60		
18/63	Install	m	60		
	<u>Termination for 70mm² x 4 core cable</u>				
18/64	Supply	No	8		
18/65	Install	No	8		
	<u>95mm² x 4 core ECC DB-11 (E)</u>				
18/66	Supply	m	200		
18/67	Install	m	200		
	<u>Termination for 90mm² x 4 core cable</u>				
18/68	Supply	No	16		
18/69	Install	No	16		
	<u>25mm² x 4 core ECC DB-12 (E)</u>				
18/70	Supply	m	80		
18/71	Install	m	80		
	<u>Termination for 25mm² x 4 core cable</u>				
18/72	Supply	No	8		
18/73	Install	No	8		
	Carried Forward			R	
	Bill No. 18 Electrical Installation				

Brought Forward				R
	<u>16mm² x 4 core ECC DB-13 (E)</u>			
18/74	Supply	m	100	
18/75	Install	m	100	
	<u>Termination for 16mm² x 4 core cable</u>			
18/76	Supply	No	8	
18/77	Install	No	8	
	<u>EARTH SPIKE</u>			
	<u>1.2m copper coated earth spike at every distribution board</u>			
18/78	Supply	No	13	
18/79	Install	No	13	
	<u>Cable maker tape (320mm wide)</u>			
18/80	Supply	m	860	
18/81	Install	m	860	
	<u>110mm diameter (kabelflex sleeve) services</u>			
18/82	Supply	m	1,260	
18/83	Install	m	1,260	
	<u>45 degrees slow bends for 110mm dia.sleeve</u>			
18/84	Supply	No	252	
18/85	Install	No	252	
	<u>50mm diameter (kabelflex sleeve)</u>			
18/86	Supply	m	1,039	
18/87	Install	m	1,039	
	Carried Forward			R
	Bill No. 18 Electrical Installation			

Brought Forward				R
	<u>45 degrees slow bends for 50mm</u>			
18/88	Supply	No	520	
18/89	Install	No	520	
	<u>The supply and installation of galvanised bosal conduit including cutting, bending, joints and fixed materials, cast on surface in roofspace</u>			
	<u>50mm Ø galvanised conduit</u>			
18/90	Supply	m	100	
18/91	Install	m	100	
	<u>32mm Ø galvanised conduit</u>			
18/92	Supply	m	90	
18/93	Install	m	90	
	<u>Excavations for cables in trenches (450 x 600x1000) 3 linear metres equals 1 cubic metre, including cart away, backfilling, risk of collapse</u>			
18/94	Excavate in normal earth measured in linear metres (not cubic metre)	m	1,060	
18/95	Allow for Soft Rock in above trench	m3	530	
18/96	Allow for Hard Rock in above trench	m3	265	
	<u>Electrical Manholes</u>			
	<u>Supply and build either pre-cast or full wall manhole with heavy duty cover with the following minimum inside dimensions: - 1200mm x 1200mm x 600mm</u>			
18/97	Supply	No	2	
18/98	Install	No	2	
	<u>Telephone Manholes</u>			

	Brought Forward			R	
	<u>Supply and build either pre-cast or full wall manhole with heavy duty cover with the following minimum inside dimensions: - 600mm x 600mm x 600mm deep</u>				
18/99	Supply	No	3		
18/100	Install	No	3		
	<u>Galvanised bosal.</u>				
	<u>The supply, installation of conduit. Prices to include cutting, draw boxes, fixing materials tees, bends, saddles, etc.</u>				
18/101	Supply	m	15,840		
18/102	Install: cast in concrete, on surface in roof- space, built in brickwork	m	15,840		
	<u>GENERAL LIGHTING</u>				
	<u>CONDUIT</u>				
	<u>CONDUIT ACCESSORIES</u>				
	<u>The supply and installation if drawboxes including locknuts</u> <u>The supply and installation if drawboxes including locknuts</u>				
	<u>Lightweight round, deep back or side entry type for 20mm dia conduit cast in concrete or roofspace, average for 1, 2, 3, and 4 ways</u>				
18/103	Supply	No	610		
18/104	Install	No	610		
	<u>Lightweight round, deep back or side entry dia conduit cast in concrete or roofspace, average for 1, 2, 3, and 4 ways</u>				
18/105	Supply	No	100		
18/106	Install	No	100		
	Carried Forward			R	
	Bill No. 18 Electrical Installation				

Brought Forward				R
	<u>Galvanised bosal, 100 x 50 x 50 switch boxes for 20mm dia conduit built into brick-work or cast into concrete (coverplates measured elsewhere)</u>			
18/107	Supply	No	610	
18/108	Install	No	610	
	<u>3.5 Octagon Box Octagon Single Gang Handy Box white for the Occupancy Sensor</u>			
18/109	Supply	No	264	
18/110	Install	No	264	
	<u>Equipment and Control Gear</u>			
	<u>16A single lever, one way flush mounted rocker type switch with coverplates (red in colour)</u>			
18/111	Supply	No	132	
18/112	Install	No	132	
	<u>10A photo cell surface mounted in an empty luminaire</u>			
18/113	Supply	No	9	
18/114	Install	No	9	
	<u>16A two lever, two way flush mounted rocker type switch with coverplates (red in colour)</u>			
18/115	Supply	No	100	
18/116	Install	No	100	
	<u>16A one lever, three way flush mounted rocker type switch with coverplates (red in colour)</u>			
18/117	Supply	No	45	
18/118	Install	No	45	
	<u>16A one lever, one way downlight flush mounted rocker type switch with coverplates (red in colour)</u>			
18/119	Supply	No	45	
	Carried Forward			R
	Bill No. 18 Electrical Installation			

Brought Forward				R
18/120	Install	No	45	
	<u>16A one lever, two way downlight flush mounted rocker type switch with coverplates (red in colour).</u>			
18/121	Supply	No	45	
18/122	Install	No	45	
	<u>16A one lever, five way downlight flush mounted rocker type switch with coverplates (red in colour)</u>			
18/123	Supply	No	45	
18/124	Install	No	45	
	<u>Dimmer switch - 1000w (one lever, one way)</u>			
18/125	Supply	No	45	
18/126	Install	No	45	
	<u>CMR 10 Occupancy Sensor with a coverage pattern of 360 degrees and viewing distance of 8.53 meters when mounted at 2.74 meters while when mounted at 2.13 viewing distance of 9.25 meters.</u>			
18/127	Supply	No	249	
18/128	Install	No	249	
	<u>CONDUCTORS</u>			
	<u>The supply and installation of PVC insulated single core stranded copper conductors drawn into conduits</u>			
	<u>1. 5mm2 PVC black and red</u>			
18/129	Supply	m	42,240	
18/130	Install	m	42,240	
	<u>2. 5mm2 PVC green / yellow earth wire</u>			
18/131	Supply	No	21,120	
18/132	Install	No	21,120	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
<u>ROOF LIGHT SWITCHES</u>				
<u>16A metal clad switch below ceiling mounted at trap door with illuminated "red" toggle switch</u>				
18/133	Supply	No	13	
18/134	Install	No	13	
<u>LUMINAIRES</u>				
<u>Supply, take delivery, unpack, test fittings, including installation, materials, connections, fluorescent and incandescent lamps. All lamps shall be Colour as described below with Standard Starters.</u>				
<u>Type A</u>				
18/135	Supply	No	134	
18/136	Install	No	134	
<u>Type B</u>				
18/137	Supply	No	271	
18/138	Install	No	271	
<u>Type C</u>				
18/139	Supply	No	15	
18/140	Install	No	15	
<u>Type DL</u>				
18/141	Supply	No	131	
18/142	Install	No	131	
<u>Type PL</u>				
18/143	Supply	No	160	
18/144	Install	No	160	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
	<u>Type E</u>			
18/145	Supply	No	84	
18/146	Install	No	84	
	<u>Type F</u>			
18/147	Supply	No	138	
18/148	Install	No	138	
	<u>Type T</u>			
18/149	Supply	m	28	
18/150	Install	No	28	
	<u>Type W</u>			
18/151	Supply	No	17	
18/152	Install	No	17	
	<u>EMERGENCY LIGHTING</u>			
	<u>Supply and install 250x300mm Suspended Double sided illuminated fire escape sign equiped with a battery pack (Lead Acid battery)</u>			
18/153	Supply	No	8	
18/154	Install	No	8	
	<u>SMALL POWER</u>			
	<u>CONDUIT AND CONDUIT ACCESSORIES SABS APPROVED CONDUIT</u>			
	<u>Galvanised bosal. The supply and installation of conduit including cutting, drawboxes and fixing materials</u>			
	<u>20mm dia</u>			
18/155	Supply	m	5,368	
	Carried Forward			R
	Bill No. 18 Electrical Installation			

Brought Forward				R
	<u>Install: cast in concrete, on surface in roofspace built into brickwork</u>			
	<u>25mm dia</u>			
18/156	Supply	m	5,368	
18/157	Install: cast in concrete, on surface in roofspace built into brickwork	m	1,952	
18/158	Install: cast in concrete, on surface in roofspace built into brickwork	m	1,952	
	<u>The supply of drawboxes including locknuts, bushes coverplates, fixing materials when required etc.</u>			
	<u>Round box for 20mm</u>			
18/159	Supply	No	924	
18/160	Install	No	924	
	<u>Round box for 25mm</u>			
18/161	Supply	No	96	
18/162	Install	No	96	
	<u>Galvanised steel, 100 x 100 x 50mm box for 20mm conduit built into brickwork or cast in concrete. (coverplates measured elsewhere)</u>			
18/163	Supply	No	924	
18/164	Install	No	924	
	<u>Galvanised steel, 100 x 100 x 50mm box for 25mm conduit built into brickwork or cast in concrete (coverplates measured elsewhere)</u>			
18/165	Supply	No	96	
18/166	Install	No	96	
	<u>CONDUCTORS</u>			

Brought Forward				R
<u>The supply and installation of PVC insulated stranded single core copper conductors drawn into conduits and ducting</u>				
<u>2.5mm2 PVC black and red</u>				
18/167	Supply	m	33,176	
18/168	Install	m	33,176	
<u>4mm2 PVC black and red</u>				
18/169	Supply	m	924	
18/170	Install	m	924	
<u>2.5mm2 PVC insulated green/yellow earth wire</u>				
18/171	Supply	m	16,588	
18/172	Install	m	16,588	
<u>EQUIPMENT AND CONTROL</u>				
<u>The supply and installation of single white round pin switch socket outlets 16A 3 pin flush mounted with coverplates and "white" neon lamp to indicate normal available</u>				
18/173	Supply	No	40	
18/174	Install	No	40	
<u>The supply and installation of Double white round pin switch socket outlets 16A 3 pin flush mounted with coverplates and "white" neon lamp to indicate normal power available</u>				
18/175	Supply	No	36	
18/176	Install	No	36	
<u>The supply and installation of red round pin single switch socket outlets 16A 3 pin flush mounted with cover plates and "red" to indicate essential power available</u>				
18/177	Supply	No	10	
18/178	Install	No	10	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
	<u>5A switchless socket outlets</u>			
18/179	Supply	No	14	
18/180	Install	No	14	
	<u>25 Ampere, isolator for cassette room aircon and mid wall split unit (heat pump), including cover</u>			
18/181	Supply	No	174	
18/182	Install	No	174	
	<u>20 Ampere, single pole flush dryer complete with including diamond range cover</u>			
18/183	Supply	No	21	
18/184	Install	No	21	
	<u>30 Ampere, one lever surface weatherproof isolator for cassette room airconditioner with heat pump, including cover.</u>			
18/185	Supply	No	87	
18/186	Install	No	87	
	<u>63 Ampere, Tripple pole weatherproof isolator for VRV units including cover.</u>			
18/187	Supply	No	9	
18/188	Install	No	9	
	<u>16 Amp duplex switch for extract fan including cover</u>			
18/189	Supply	No	66	
18/190	Install	No	66	
	<u>40 Ampere, single pole flush mounted isolator for hydroboiler complete with including cover</u>			
18/191	Supply	No	9	
18/192	Install	No	9	
<u>POWER SKIRTING AND POWER TRUNKING</u>				
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
<u>The supply and installation of modular pre-galvanised 2 compartment power skirting or power trunking complete with 2 separate clip on steel full length covers length covers silver in colour, Endcap/top end, Inside Bend, Outside Bend, Corner Riser, Mid Point "TEE" Riser etc.</u>				
<u>2 compartment P802 power ducting complete with 55mm cover (subdivisible).</u>				
18/193	Supply	m	678	
18/194	Install	m	678	
<u>16A 3 pin round socket outlet white</u>				
18/195	Supply	No	205	
18/196	Install	No	205	
<u>16A 3 pin round socket outlet red</u>				
18/197	Supply	No	473	
18/198	Install	No	473	
<u>Data Blank cover</u>				
18/199	Supply	No	410	
18/200	Install	No	410	
<u>Telephone Blank cover</u>				
18/201	Supply	No	205	
18/202	Install	m	205	
<u>TELEPHONE AND NETWORK</u>				
<u>CONDUIT</u>				
<u>All conduits and accessories to be galvanised bosal.</u>				
<u>The supply and installation of conduit including cutting, bending, joints, settings, fittings, boxes, fixing materials</u>				
Carried Forward				R
Bill No. 18				
Electrical Installation				

Brought Forward				R
	<u>25mm galvanised bosal conduit</u>			
18/203	Supply	m	2,000	
18/204	Install: cast in concrete, on surface in roof space built into brickwork	m	2,000	
	<u>32mm galvanised bosal conduit</u>			
18/205	Supply	m	140	
18/206	Install	m	140	
	<u>CONDUIT ACCESSORIES</u>			
	<u>The supply, installation of drawboxes including locknuts, bushes, coverplates, fixing materials.</u>			
	<u>100 x 50 x 50 galvanised bosal drawboxes for 25mm conduit built into wall brick including coverplates</u>			
18/207	Supply	No	25	
18/208	Install	No	25	
	<u>100 x 50 x 50mm galvanised draw boxes for 25mm conduit built into brick work with blank coverplates. (Television point)</u>			
18/209	Supply	No	2	
18/210	Install	No	2	
	<u>The supply and installation of galvanised steel draw wires drawn into conduit(1.6mm)</u>			
18/211	Supply	m	2,140	
18/212	Install	m	2,140	
	<u>The supply and installation of flush board with soft wood backing architrave and hinged door 450 x 450 x 100mm board</u>			
18/213	Supply	No	3	
18/214	Install	No	3	
	Carried Forward			R
	Bill No. 18 Electrical Installation			

Brought Forward				R
	<u>300 x 300 x 100mm board</u>			
18/215	Supply	No	3	
18/216	Install	No	3	
<u>AREA LIGHTING</u>				
<u>LOW VOLTAGE CABLE</u>				
<u>Provide, install, test and commission the following 1 000V ECC/SWA/ECC copper cable. Price shall allow for the installation of cables in cable ducts, through sleeves, conduits, or installation against vertical and horizontal levels (e.g., walls, poles, etc) but shall not include the various cable ends, trenches or the backfilling of trenches.</u>				
	<u>6mm² x 4 core ECC</u>			
18/217	Supply	m	240	
18/218	Install	m	240	
<u>Terminate and make off the following 1 000V ECC/ SWA/ECC cable in a cable gland onto a gland plate according to the manufacture's instructions. Provide the gland as well as the cores with lugs and bolt onto terminals. The marking of the cable shall also be allowed for. (Note the light fittings are supplied with glands, see detail spec.)</u>				
	<u>6mm² x 4 core terminations</u>			
18/219	supply	No	38	
18/220	install	No	38	
<u>Provide and install a three-way Pratley box, cores with lugs and suitable connectors.</u>				
18/221	supply	No	16	
18/222	Install	No	16	
<u>Provide and install a four-way Pratley box, cores with lugs and suitable connectors.</u>				
18/223	supply	No	16	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
18/224	install	No	16	
<u>CABLE TRENCHES</u>				
<u>Excavation and back-fill cable trenches as per specification. (Including soft soil layer around cable). The excavation for the perimeter poles are included here.</u>				
18/225	Earth	m3	600	
18/226	Soft rock	m3	300	
18/227	Hard rock	m3	200	
<u>Provide and install cable marker tape above cable, 300mm below finished ground level.</u>				
18/228	Supply	m	540	
18/229	Install	m	540	
<u>PVC INSULATED CONDUCTOR</u>				
<u>Provide and install the following lengths of insulated conductor (inside poles) 2.5mm</u>				
18/230	Supply	m	3,784	
18/231	Install	m	3,784	
<u>EARTH WIRE</u>				
<u>Supply and install the following lengths of earth wire(inside poles)</u>				
18/232	Supply	m	1,892	
18/233	Install	m	1,892	
<u>6mm (to be taped together with the cable at 1.5m intervals)</u>				
18/234	Supply	m	240	
18/235	Install	m	240	
<u>LIGHT FITTINGS</u>				
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
<u>Provide ,install and connect completely the following light fittings as described light fitting schedule in the positions indicated on the drawings. Light fittings shall be complete with lamps and shall be approved by the Department</u>				
<u>Type X</u>				
18/236	Supply	No	4	
18/237	Install	No	4	
<u>Type J</u>				
18/238	Supply	No	10	
18/239	Install	No	10	
<u>Photocell</u>				
18/240	Supply	No	15	
18/241	Install	No	15	
18/242	Supply: Galvanised steel light pole to achieve 9.5m above ground.	No	10	
18/243	Install in tarmac to achieve 9.5m above ground level	No	10	
<u>ACCESS CONTROL</u>				
<u>Supply, Install, Test and commission an access control system complete with a control panel, software electromechanical hardware, electronic hardware and sytem users (ID card)</u>				
<u>GATE CONTROL EQUIPEMENT</u>				
<u>Supply and Install a boom gate complete with all the necessary equipments . It must have a green button for opening and a red button for closing</u>				
18/244	Supply	No	2	
18/245	Install	No	2	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward			R
<u>CCTV</u>			
<u>CCTV EQUIPMENT</u>			
18/246	Supply and install Indoor Dome Camera complete with an IR illumination, day/night, digital noise reduction and digital Slow shutter.	No 18	
18/247	Install	No 18	
18/248	Supply and install Indoor Bullet Camera complete with an IR illumination, day/night, digital noise reduction and digital Slow shutter.	No 40	
18/249	Install	No 40	
18/250	Supply and install Outdoor Bullet Camera complete with an IR illumination, day/night, digital noise reduction and digital Slow shutter.	No 11	
18/251	Install	No 11	
18/252	Supply and install outdoor PTZ Camera complete with an IR illumination, day/night, digital noise reduction and digital Slow shutter.	No 10	
18/253	Install	No 10	
<u>Network switch.</u>			
18/254	supply	No 12	
18/255	Install	No 12	
<u>Network Video recorder</u>			
18/256	supply	No 4	
18/257	Install	No 4	
<u>MONITORS</u>			
<u>Supply and Install LED monitor complete with 16 channel real channel NVR</u>			
18/258	supply	No 8	
18/259	Install	No 8	
Carried Forward			R
Bill No. 18 Electrical Installation			

Brought Forward				R
<u>CABLES</u>				
<u>Allow for the supply and install of RG59 power cable</u>				
18/260	Supply	m	1,264	
18/261	Install	m	1,264	
<u>CONDUIT</u>				
<u>Conduit and accessories to be Galvanized Bosal.</u>				
<u>The supply and installation of conduit includes cutting, drawboxes and fixing materials.</u>				
<u>20mm dia</u>				
18/262	Supply	m	832	
18/263	Install: cast in concrete, on surface in roofspace built into brickwork	m	832	
<u>CONDUIT ACCESSORIES</u>				
<u>The supply of drawboxes including locknuts, bushes, coverplates, fixing materials when required.</u>				
<u>Round box for 20mm</u>				
18/264	Supply	No	230	
18/265	Install	No	230	
<u>WIRE BASKET</u>				
<u>Supply and Install P220 wire basket above ceiling</u>				
18/266	Supply	m	1,264	
18/267	Install	m	1,264	
<u>SLEEVES</u>				
<u>Supply and Install 50mm diameter (kabelflex sleeve)</u>				
18/268	Supply	m	395	
18/269	Install	m	395	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
	<u>45 degrees slow bends for 50mm dia.sleeve</u>			
18/270	Supply	No	198	
18/271	Install	No	198	
	<u>Supply and install camera housing, brackets and all connections.</u>			
18/272	Supply	No	92	
18/273	Install	No	92	
18/274	Testing and commissioning of the complete CCTV			SUM
18/275	Provide marked-up copy "As built" record drawings for CCTV.			SUM
18/276	Provide training course for CCTV installation			SUM
18/277	Provide complete operating and maintenance manuals for the complete installation			SUM
	<u>EARTHING AND LIGHTNING PROTECTION</u>			
	<u>EARTHING</u>			
18/278	<u>Earthing and bonding to SANS 10142-1</u>		Item	
	<u>TESTING & COMMISSIONING</u>			
18/279	Testing of the complete electrical installation in terms of SANS 10142-1 and provision of Certificates of Compliance		Item	
	<u>BONDING OF WATER MAINS AND CABLES</u>			
	<u>Bond the proposed water main to the adjacent down conductor. All water pipes, hand basins, sinks, baths, gutters and rain water pipes shall be bonded.</u>			
18/280	All external earth wires and cable armouring from the incoming and outgoing cables will be properly crimped into cable lugs and bolted to their respective earth bars.			SUM
	<u>LIGHTNING PROTECTION</u>			
	<u>Earthrods</u>			
	Carried Forward			R
	Bill No. 18 Electrical Installation			

Brought Forward				R
	<u>Earthrods should ideally be spaced approximately 10m intervals and connected to the earth wire to achieve equal potential bonding 1500mm Copper Earthrods/spikes</u>			
18/281	Supply	No	30	
18/282	Install	No	30	
	<u>Supply and Install Down Aluminium rod strictly in accordance with the relevant SANS & IEC Specifications</u>			
	<u>16mm² Aluminium Rods</u>			
18/283	Supply	m	250	
18/284	Install	m	250	
18/285	Terminate	No	25	
	<u>Bare Stranded Copper Earth Wire</u>			
	<u>Supply and install Bare Stranded Copper wires in trenches including termination for Equipotential Bonding strictly in accordance with the relevant SANS & IEC Specifications</u>			
	<u>35mm² copper cable</u>			
18/286	Supply	m	120	
18/287	Install	m	120	
18/288	Terminate	No	10	
	<u>Ring Earth Trenching</u>			
	<u>Trenching (300mm wide X 600mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.</u>			
18/289	soft hand pickable soil	m	350	
18/290	soil requiring pneumatics tools and aids	m	100	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward				R
<u>TESTING</u>				
18/291	Test the complete installation including the handing in of the test results (Certificate of Lightning Protection) to the Engineer.	Item		
<u>REMOVAL OF EXISTING MATERIAL ON SITE LOW VOLTAGE CABLES</u>				
<u>DISCONNECT THE FOLLOWING SUPPLY CABLES</u>				
<u>Price to switch off, disconnnet and remove the following existing three or single phase supply cable. Price for digging must be included here. Make safe and tidy afterwards.(All cables must return to client)</u>				
18/292	50mm ² - 70mm ²			SUM
18/293	16mm ² - 35mm ²			SUM
18/294	6mm ² - 10mm ²			SUM
<u>Excavations for cables in trenches (450 x 600x1000) 3 linear metres equals 1 cubic metre</u>				
18/295	metres equals 1 cubic metre (not cubic metre)	m	200	
18/296	Allow for Soft Rock in above trench	m3	70	
18/297	Allow for Hard Rock in above trench	m3	30	
<u>CONFIRM CABLE ROUTE</u>				
18/298	Price to confirm an existing supply cable route and position on site with a cable detector. Price per visit of one day			SUM
<u>Price to remove the following flush distribution boards. Disconnect and remove circuit breakers and other switchgear, disconnect conduits etc.</u>				
18/299	Up to 8 way	No	9	
18/300	Up to 12 way	No	6	
18/301	Up to 18 way	No	5	
Carried Forward				R
Bill No. 18 Electrical Installation				

Brought Forward			R
<u>As above but for the following surface distribution boards:</u>			
18/302	Up to 8 way	No	5
18/303	Up to 18 way	No	7
18/304	Up to 11 way 3phase	No	11
<u>GENERAL LIGHTING</u>			
18/305	Price to remove the PVC/ Galvanised conduit, internal and external wiring, wall/surface light switch, wall/surface plugs.		SUM
<u>CONDUIT BOXES</u>			
18/306	Price to remove Galvanised bosal, 100 x 50 x 50 switch boxes for 20mm dia conduit built into brick-work or cast into concrete (coverplates measured elsewhere)		SUM
<u>Equipment and Control Gear</u>			
18/307	Galvanised steel, 100 x 100 x 50mm box for 20mm conduit built into brickwork or cast in concrete. (coverplates measured elsewhere)		SUM
<u>LUMINAIRES</u>			
18/308	Remove an existing recessed mounted, diffuser, three lamp and return to client.		SUM
18/309	Remove an existing surface mounted, open channel, two lamp fluorescent luminaires and return to client.		SUM
18/310	Remove an existing surface mounted fluorescent/ bulkhead type luminaires and return to client.		SUM
18/311	Remove an existing pole mounted luminaires (mounted on 6m poles), including additional floodlights and return to client.		SUM
18/312	Remove an existing photo cells		SUM
<u>TELEPHONE AND LAN SYSTEM WIRE-WAYS</u>			
Carried Forward			R
Bill No. 18 Electrical Installation			

Brought Forward		R	
<u>CONDUIT</u>			
18/313	Price to remove all conduits and accessories to be PVC. The supply and installation of conduit including cutting, bending, joints, settings, fittings, boxes, fixing materials	SUM	
18/314	Price to remove all PVC Sleeves	SUM	
18/315	Price to remove 300 x 300 x 100mm board	SUM	
<u>SUNDRY ITEMS</u>			
18/316	Allow sum for feature lighting to architects choice	SUM	
18/317	Provide certificate of compliance for all works	SUM	
Carried to Summary		R	
Bill No. 18 Electrical Installation			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 19</u> <u>MECHANICAL WORK</u> <u>(CPAP WORK GROUP NO. 170 AND 172 AS APPLICABLE)</u> The Tenderer is referred to the relevant Clauses in the separate document 'Model Preambles for Trades 2008' <u>SUPPLEMENTARY PREAMBLE</u>			
	Carried Forward		R	
	Bill No. 19 Mechanical Installation			

Brought Forward			R
<u>MISCELLANEOUS ITEMS</u>			
<u>Outdoor Unit- Supply and install complete as specified including all fixtures and fittings, auxiliaries and ancillaries and refrigerant for entire system and hail guards. Note the total outdoor load includes the fresh air system load.</u> <u>2.2.1 56kW Unit</u> Indoor Unit- Supply and install complete as specified including all fixtures and fittings, control panels, auxiliaries and ancillaries. Four way cassette units. The system shall have the capability of providing heating or cooling to individual spaces simultaneously as specified and shown on the drawings. The tender price shall include for the equipment specified below as well as all branch controllers, refrigerant piping, refnet joints, auxiliary and ancillary equipment etc. for the system to operate as specified. Refrigerant pipe runs shall generally follow the routes shown on the drawings. Also the routes can be diverted where we have obstacles in the pre-designed path. <u>Air conditioning Installation</u> <u>VRV - System</u> <u>Outdoor Unit- Supply and install complete as specified including all fixtures and fittings, auxiliaries and ancillaries and refrigerant for entire system and hail guards. Note the total outdoor load includes the fresh air system load.</u>			
19/1	56kW	No	8
<u>Indoor Unit- Supply and install complete as specified including all fixtures and fittings, control panels, auxiliaries and ancillaries. Midwall type indoor units</u>			
19/2	1.4 kW	No	84
19/3	2.3 kW	No	18
Carried Forward			R
Bill No. 19 Mechanical Installation			

Brought Forward				R
	<u>Indoor Unit- Supply and install complete as specified including all fixtures and fittings, control panels, auxiliaries and ancillaries. Four way cassette units. Roundflow cassette units</u>			
19/4	4.3 kW	No	67	
	<u>Medium duty galvanised, perforated cable tray complete with fittings and hangers to manufacturer's specifications</u>			
19/5	300mm wide	m	405	
19/6	<u>Electrical Installation complete with fittings and fixtures</u>	No	32	
19/7	<u>Control panel and related switchgear</u>	No	19	
19/8	Wall wired remotes	No	91	
	<u>Condensate drains including all fittings and fixtures</u>			
19/9	25mm Condensate Drain Pipe	m	376	
19/10	32mm Condensate Drain Pipe	m	480	
19/11	Small items to complete this installation in full.		Item	
	<u>Water Heating</u>			
19/12	Supply and install commission 5 ltrs hydroboil 25-30 cup equivalent W 318mm x D150mm x H 431mm on top of kitchen sink	No	3	
19/13	190 ltrs heat pumps complete with all pipe works at the ablution	No	6	
	<u>Air Conditioning Installation</u>			
	<u>AC Gas & liquid Piping and Fittings</u>			
	<u>For purposes of measuring extra over to piping and fittings measured under the system Bills. Supply and install air conditioning gas and liquid piping and fittings for R410A system</u>			
19/14	Copper piping ø6.35mm	m	100	
19/15	Copper piping ø9.52mm	m	250	
19/16	Copper piping ø12.7mm	m	160	
Carried Forward				R
Bill No. 19 Mechanical Installation				

	Brought Forward			R	
19/17	Copper piping ø15.88mm	m	160		
19/18	Copper piping ø19.05mm	m	186		
19/19	56kW	m	6		
19/20	Copper piping ø28.58mm	m	30		
19/21	DCM601- intelligent touch Controller with all complete accessories	m	67		
19/22	Zoning kit BPG-DZKAPP with all complete accessories	m	12		
	<u>Day Works</u>				
	<u>Dayworks for items on site and to be approved by the Engineer prior to implementation</u>				
19/23	Qualified Artisan	Hrs	40.00		
19/24	Semi-skilled labourer	Hrs	80.00		
19/25	Labourer	Hrs	160.00		
	<u>HEATING VENTILATION AND AIR CONDITIONING INSTALLATION</u>				
	<u>Fresh Air System</u>				
19/26	600x350 Weather Louvre, Natural anodised finish, Filter box and filter+WMS	No	8		
	<u>In Line Fan - FAF 01</u>				
19/27	Supply and install in line duct fan, axial inline fan, Duty 500 l/s c/w 2 x 1.5D sound attenuators	No	7		
	<u>Wall Mounted extract fans - EF 01, 02, 03, 04 & 05</u>				
19/28	Wall mounted extract fans Duty 50 l/s	No	17		
19/29	Wall mounted control ON/OFF switches, power & control cables	No	15		
19/30	7 days timer controller to the fan	No	21		
	<u>Galvanised Sheet Metal Ducting</u>				
	Carried Forward			R	
	Bill No. 19 Mechanical Installation				

Brought Forward				R
<u>Low pressure, uninsulated, galvanised ducting & ancillaries including supports & fixings</u>				
19/31	600x350 wall sleeve	No	8	
19/32	Transformation piece 600x350 to dia 400	No	8	
19/33	Transformation piece 550x200 to dia 400	No	8	
19/34	500x200	m	79	
19/35	90 degree bend 500x200	No	7	
19/36	Reducer 500x200 to 400x200	No	7	
19/37	500x200	m	40	
19/38	Reducer 400x200 to 300x200	No	7	
19/39	300x200	m	94	
19/40	200x150	m	54	
19/41	300x150	m	48	
19/42	150x150	m	84	
19/43	Straight ducting dia 150 mm	m	240	
<u>Stop End</u>				
19/44	300x200	No	8	
19/45	150x150	No	47	
19/46	200x150	No	24	
<u>Spigots</u>				
19/47	Galvanised sheet metal spigot 150 mm diam.	No	134	
<u>Balancing Dampers</u>				
19/48	Galvanised sheet metal dampers 150 mm diam.	No	137	
Carried Forward				R
Bill No. 19 Mechanical Installation				

Brought Forward				R
<u>Take Off</u>				
19/49	Galvanised sheet metal 45 deg. Shoe takeoff 200 x150 mm .	No	24	
19/50	Galvanised sheet metal 45 deg. Shoe takeoff 150 x150 mm .	No	49	
19/51	Galvanised sheet metal 45 deg. Shoe takeoff 300 x150 mm .	No	20	
<u>Flexible Ducting</u>				
19/52	150 mm diam un-insulated flexible ducting.	m	290	
<u>Diffusers & Ventilators</u>				
19/53	<u>Supply and install 150 mm diam ceiling disc diffuser with balancing disc.</u>	No	122	
19/54	250x250 Door Grille	No	19	
<u>Electrical Connection</u>				
19/55	Supply and install power cable to isolator provided by others, in roof space.	No	7	
<u>Hangers & Brackets</u>				
19/56	Supply, Install, test, commission and provide 12 month guarantee for all hangers, brackets and etc. for fresh air & extraction ducting all as specified.	No	7	
19/57	600x350 Weather Louvre,Natural anodised finish, Filter box and filter+WMS	No	5	
19/58	<u>300 x300 Weather Louvre,Natural anodised finish</u>	No	7	
<u>In Line Fan - FAF 02</u>				
19/59	Supply and install in line duct fan, axial inline fan, Duty 650 l/s c/w 2 x 1.5D sound attenuators	No	5	
<u>In Line Fan - EF-07</u>				
19/60	Supply and install in line duct fan, axial inline fan, Duty 300 l/s @150Pa c/w 2 x 1.5D sound attenuators	No	10	
Carried Forward				R
Bill No. 19 Mechanical Installation				

Brought Forward			R
19/61	Supply and install in line duct fan, axial inline fan, Duty 200 l/s c/w 2 x 1.5D sound attenuators	No	2
19/62	Wall mounted control ON/OFF switches, power & control cables	No	30
19/63	7 days timer controller to the fan	No	30
	<u>Galvanised Sheet Metal Ducting</u>		
	<u>Low pressure, uninsulated, galvanised ducting & ancillaries including supports & fixings</u>		
19/64	600x350 wall sleeve	No	5
19/65	300x300 wall sleeve	No	7
19/66	Transformation piece 600x350 to dia 400	No	7
19/67	Transformation piece 600x200 to dia 400	No	5
19/68	Transformation piece 200x200 to dia 200	No	6
19/69	Transformation piece 300x300 to dia 200	No	9
19/70	600x200	m	8
19/71	90 degree bend 500x200	No	11
19/72	90 degree bend 200x200	No	11
19/73	Reducer 500x200 to 300x200	No	5
19/74	300x200	m	60
19/75	Reducer 300x150 to 150x150	No	20
19/76	300x150	m	36
19/77	90 degree bend 500x200	No	
19/78	150x150	m	90
19/79	200x150	m	139
19/80	200x200	m	85
19/81	Straight ducting dia 150 mm	m	236
Carried Forward			R
Bill No. 19 Mechanical Installation			

Brought Forward			R
	<u>Stop end</u>		
19/82	300x200	No	4
19/83	150x150	No	14
19/84	200x150	No	14
19/85	200x200	No	8
	<u>Take Off</u>		
19/86	<u>Galvanised sheet metal 45 deg. Shoe takeoff 200 x150 mm.</u>	No	16
19/87	Galvanised sheet metal 45 deg. Shoe takeoff 300 x150 mm .	No	21
	<u>Spigots</u>		
19/88	Galvanised sheet metal spigot 150 mm diam.	No	126
	<u>Flexible Ducting</u>		
19/89	150 mm diam un-insulated flexible ducting.	m	260
	<u>Diffusers & Ventilators</u>		
19/90	Supply and install 150 mm diam ceiling disc diffuser with balancing disc.	No	119
19/91	250x250 Door Grille	No	30
	<u>Electrical Connection</u>		
19/92	Supply and install power cable to isolator provided by others, in roof space.	No	54
	<u>Hangers & Brackets</u>		
19/93	Supply, Install, test, commission and provide 12 month guarantee for all hangers, brackets and etc. for fresh air & extraction ducting all as specified.	No	5
<u>FIRE DETECTION SYSTEM</u>			
Carried Forward			R
Bill No. 19 Mechanical Installation			

Brought Forward				R
<u>Supply, installation and commissioning of analogue addressable fire detection system including all cabling, devices and connections as listed.</u>				
19/94	8 Loop Fire Control Panel	No	1	
19/95	4 Loop Fire Control Panel	No	7	
19/96	Battery back up system	No	9	
19/97	Addressable Multisensor (algorithm based technology)	No	342	
19/98	Addressable Sounder	No	63	
19/99	Addressable Call Point (Break Glass)	No	35	
19/100	Addressable unit monitored outputs for driving sounders C/W mounting box.	No	41	
19/101	Relay (interface)	No	20	
19/102	Teledialer system linked to the Fire department or police station			
				SUM
19/103	120db 24 V DC evacuation siren C/W mounting brackets and all fixing materials.	No	15	
19/104	PH30 Fire cable	m	15,320	
<u>Supply and install conduit as specified placed in position for surface mounting on concrete or brickwork, and for surface mounting in ceiling void including bending, jointing, cutting, draw boxes, coupling, inspection bends, bends, tees and saddles</u>				
19/105	25mm galvanised sprague	m	10,080	
19/106	Line isolator and base	No	53	
19/107	Screwed dome lids for conduit boxes	No	662	
19/108	20mm flexible PVC coated conduit (Kopex), in 1 metre lengths	No	517	
Carried Forward				R
Bill No. 19 Mechanical Installation				

Brought Forward				R
19/109	8mm flexible PVC coated conduit (Kopex), in 1 metre lengths	No	294	
	<u>Supply and install screened conductor (FR20) as specified, for connecting fire panel to line devices and sensors. Conductor to be into conduit /ducting.</u>			
19/110	Low level Magnet door hold backmounted @300mm AFFL and 150mm from the end	No	37	
19/111	Strobe Warning light	No	12	
19/112	1mm sq x 2 core screened cable (loop cable)	m	14,580	
	<u>STAIRCASE PRESSURIZING FAN & ELEVATOR SHAFT PRESSURIZING FAN</u>			
	<u>Supply, installation and commissioning of analogue addressable fire detection system including all cabling, devices and connections as listed.</u>			
19/113	Elevator Shaft Pressurizing Fan -892 l/s With all accessories necessary to install	No	2	
19/114	Staircase Pressuring Fan - 10437 l/s With all accessories necessary to install	No	2	
19/115	Automatic Opening Smoke detector Ventilator 40x400	No	16	
19/116	Smoke detector	No	12	
19/117	Automatic Elevator Shaft Smoke Ventilator System Mounted at roof top of the Elevator Shaft linked and controlled by Smoke Detector to open	No	2	
19/118	Door grills	No	8	
19/119	Relay (interface)	No	2	
19/120	32 Way Electrical control panel with Variable speed drive place next to SPF and ESPF position (Electrician) to provide	No	4	
19/121	PH30 Fire cable	m	1,780	
Carried Forward				R
Bill No. 19 Mechanical Installation				

Brought Forward				R
	<u>Supply and install conduit as specified placed in position for surface mounting on concrete or brickwork, and for surface mounting in ceiling void including bending, jointing, cutting, draw boxes, coupling, inspection bends, bends, tees and saddles</u>			
19/122	25mm galvanised sprague	m	600	
19/123	Screwed dome lids for conduit boxes	No	24	
19/124	20mm flexible PVC coated conduit (Kopex), in 1 metre lengths	No	96	
19/125	8mm flexible PVC coated conduit (Kopex), in 1 metre lengths	No	104	
19/126	Fire resistance duct 250x450mm square	m	98	
19/127	Low level Magnet door hold backmounted @300mm AFFL and 150mm from the end	No	12	
	<u>Installation of Fire Hydrant</u>			
19/128	Provision Of Supply and Install fire hydrant in 150m away from the existing Main water line			SUM
	<u>Excavation</u>			
19/129	Excavation of 60m and lay 2x 110 sleeves to link executive block, Guard house and Block C fire panel	m3	22	
19/130	Cutting Tare and Replacement	m3	6	
	<u>Fire Protection at the Parking Area</u>			
19/131	Supply and Install 9 kg Fire exstinguishers at the specified ares at the caparking	No	14	
	<u>Excavation</u>			
19/132	Excavation of 60m and lay 2x 110 sleeves to link executive block, Guard house and Block C fire panel	m3	16	
	<u>Sleeves</u>			
19/133	110 Dia	m	120	
Carried to Summary				R
Bill No. 19 Mechanical Installation				

[illegible]



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF
LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF
EXISTING BALCONIES**

PART C3. SCOPE OF WORKS

C3.1 SCOPE OF WORKS GCC FOR CONSTRUCTION WORKS (Edition 2 of 2010)			
Scope of Works complied in accordance with SANS 10403 where reference is made to this part of SANS 1921-1:2004			
Project title:	SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES		
Tender no:	ZNTM01182W	Project Code:	059789
1	<u>SECTION 1</u> <u>EXTENT OF THE WORKS</u> 1.1 EMPLOYERS OBJECTIVES Repairs and renovations of EXECUTIVE BLOCK, BLOCK B & C and the Guard Hut, including additional work in Block A top floor level and roof area which were deemed urgent due to Storm damage in April 2022 1.2 OVERVIEW OF THE WORKS None 1.3 EXTENT OF THE WORKS The contract comprises the construction of : Replacement damaged roof tiles, ceilings, glazing, wall paper, etc. Creating new offices by enclosing existing balconies. Providing, maintaining and replacing sunscreens where required. Fixing material that was damaged due to either deterioration due to the age of the buildings, storm damage, lack of maintenance, neglect or poor workmanship. General maintenance including painting, replacing fittings or fixtures. Ensuring the building comply with National Building Regulations including Fire Regulations. 1.4 LOCATION OF THE WORKS The site is situated within the premises DOT HEAD OFFICE PRECINCT 172 BURGER STREET, INKOSI MHLABUNZIMA GPS Co-ordinates for the site is Latitude -29°36'28.51"S, Longitude - 30°22'47.96"E 1.5 TEMPORARY WORKS All temporary work to comply with the Occupational Health and safety Act (Act 85 of 1993)		
2	<u>ENGINEERING</u> 2.1 EMPLOYER'S DESIGN Not applicable 2.2 DESIGN BRIEF Not applicable 2.3 DRAWINGS See list of drawings/Annexure's attached to this document.		

2.4	DESIGN PROCEDURES Not applicable
3	<u>PROCUREMENT</u> 3.1 PREFERENTIAL PROCUREMENT PROCEDURES This tender will be subject to the implementation of the Preferential Procurement Regulations, 2022, pertaining to the Preferential Procurement Policy Framework Act, Act Number 5 of 2000 and the relevant Supply Chain Management Legislation and the KwaZulu-Natal Supply Chain Management Policy Framework published by the KwaZulu-Natal Provincial Treasury. Tenderders are referred to www.kzntreasury.gov.za for access to the relevant documents. Tenderders are advised to familiarize themselves with the contents of the KwaZulu-Natal Supply Chain Management Policy Framework regarding Preference Point Systems, evaluation of tenders appeals and other matters. 3.2 RESOURCE STANDARD PERTAINING TO TARGETED PROCUREMENT NOTE : This project will be adjudicated as not exceeding R 50,000 000,00 3.3 SCOPE OF MANDATORY SUBCONTRACT WORK Not applicable 3.4 PREFERRED SUBCONTRACTORS/SUPPLIERS Not applicable 3.5 SUBCONTRACTING PROCEDURES Not applicable
4	<u>CONSTRUCTION</u> 4.1 APPLICABLE SANS 2001 STANDARDS FOR CONSTRUCTION WORKS The Contractor is referred to the "Model Preambles to Trades - 2008", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification for full descriptions of materials and methods referred to in these Bills of Quantities/Lump Sum documents, insofar as they apply. The Contractor is advised to study the "Standard Preambles to all Trades", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification, before pricing Bills of Quantities/Lump Sum documents. Where the description in the Bills of Quantities/Lump Sum documents differ from those in the Standard Electrical Specifications, the descriptions in the Bills of Quantities/Lump Sum documents are to apply. No claim whatsoever will be allowed in respect of errors in pricing due to brevity of description of items in the Bills of Quantities/Lump Sum documents which are fully described when read in conjunction with the relevant Preambles and/or Specifications. Suppliers of materials and the like, whose quality systems apply with one or more of the SABS/SANS ISO 9000 Series should be used whenever possible in the absence of a particular SABS/SANS Specification Standard Mark. Wherever the words "shall be deemed to be included in the description", "shall be stated" or other words having the same effect, appear in the Standard System, it shall be deemed that all descriptions in these Bills of Quantities/Lump Sum documents incorporated such inclusions and statements whether specifically stated or not. The Contractor is hereby informed that where SABS/SANS Specifications are referred to in these Bills of Quantities/Lump Sums documents and Specifications thereto, then ONLY the Specification of Work Clauses will apply. The method of measurement and payment clauses will NOT apply to this Contract. The Contractor is hereby informed that risk of collapse and keeping excavations free from water (excluding subterranean water) generally are deemed to be included in the descriptions unless accommodated in the system of measurement. Please refer to the Geotechnical Investigation report when included at the end of these tender documents. Whenever reference is made to "Sub-Contractor", "Nominated Sub-Contractor" or the like in the specifications included or referred to in these Bills of Quantities/Lump Sums documents, it shall be deemed to mean "Contractor" as defined.

4.2	APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS See above 4.1												
4.3	PARTICULAR / GENERIC SPECIFICATIONS The Contractor is referred to the following documents whether attached to this document or not: <table border="0"> <thead> <tr> <th><u>SPECIFICATION</u></th><th><u>PAGES</u></th></tr> </thead> <tbody> <tr> <td>Specification for HIV/AIDS Awareness (CIDB)</td><td>HIV1 TO HIV3</td></tr> <tr> <td>Specific Construction, Safety, Health and Environmental Plan</td><td></td></tr> <tr> <td>Model Preambles for Trades 2008</td><td>1 to 49</td></tr> <tr> <td>General Electrical Specification</td><td>E/1 to E/20</td></tr> <tr> <td>Lightning Protection Installation</td><td>LP/1 to LP/6</td></tr> </tbody> </table>	<u>SPECIFICATION</u>	<u>PAGES</u>	Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3	Specific Construction, Safety, Health and Environmental Plan		Model Preambles for Trades 2008	1 to 49	General Electrical Specification	E/1 to E/20	Lightning Protection Installation	LP/1 to LP/6
<u>SPECIFICATION</u>	<u>PAGES</u>												
Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3												
Specific Construction, Safety, Health and Environmental Plan													
Model Preambles for Trades 2008	1 to 49												
General Electrical Specification	E/1 to E/20												
Lightning Protection Installation	LP/1 to LP/6												
4.4	CERTIFICATION BY RECOGNIZED BODIES Only contractors registered with the Electrical Contracting Board of South Africa in accordance with the Regulations of the Occupational Health and Safety Act will be accepted and permitted to do work under this contract.												
4.5	AGRÉMENT CERTIFICATES Not applicable												
4.6	PLANT AND MATERIAL PROVIDED BY THE EMPLOYER Not applicable												
4.7	SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER Not applicable												
4.8	OTHER SERVICES AND FACILITIES The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Administration. The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed. The Contractor is advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.												
5	<u>MANAGEMENT</u>												
5.1	APPLICABLE SANS 1921 STANDARDS Tenderders are referred to SECTION 2 : SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 IN THIS DOCUMENT												
5.2	RECORDING OF WEATHER The Contractor shall keep record of abnormal climatic conditions to facilitate the adjudication of claims for extension of the contract period.												

The Contractor shall allow in his programme for the following number of days for rain days (rain > 10mm per day) as per the table below:

CURRENT YEAR			YEAR + 1
January	w/days		3
February	w/days		3
March	w/days		3
April	w/days		3
May	w/days		3
June	w/days		3
July	w/days		3
August	w/days		3
September	w/days		3
October	w/days		3
November	w/days		3
December	w/days	3	3

5.3 MANAGEMENT MEETINGS

In order to facilitate the smooth functioning of the Works and to ensure the closest co-operation between all the parties concerned, the Employer will call for regular meetings to be held on the site, at which a senior member of the Contracting firm and the General Foreman of the Works will always be required to be present. In addition to the above, other persons will be required to attend these meetings as and when their presence is necessary, e.g., Consultants in all disciplines, representatives of the various Sub-Contractors, etc. Proper minutes of these meetings will be kept by the Employer/Principal Agent and copies will be circulated to all persons attending the meetings and to others who need to be kept informed.

5.4 FORMS FOR CONTRACT ADMINISTRATION

The Employer shall provide all necessary forms.

5.5 ELECTRONIC PAYMENTS

The Contractor shall provide all required information to the Employer to facilitate electronic payments upon request.

5.6 DAILY RECORDS

The Contractor shall keep daily records of people and equipment employed as well as a site diary in respect of work performed on the site.

At the end of each week the Contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all Sub-Contractors on the works each day.

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, currently used on the works.

5.7 BONDS AND GUARANTEES

The Contractor shall within 10 calendar days after receiving notice from the Engineer and prior to receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer's agent (whose details are given in the contract data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the Contract Data.

5.8 PAYMENT CERTIFICATES

Requirements will be in accordance with the Employers prescriptions.

5.9	PERMITS The Contractor is advised that, in the case of an existing building or institution, all security measures in force will remain in operation and he must acquaint himself and his Employees with them as he and his Employees will at all times be subject to these measures. The Contractor will on no account extend his operations beyond the confines of the building site as indicated by the Employer and must ensure that all his Employees are made aware of these limits. Any Employee disregarding this instruction and found outside the limit of the building site without authority, shall be redeployed immediately and shall not again be employed on this Contract. The Contractor will be responsible for ensuring that this instruction is strictly enforced and must provide and remove upon completion or when directed, such other necessary temporary barriers, fences, etc., as may be required and is to allow opposite this item for any charges he may wish to make in this connection. The Employer will accept no responsibility whatsoever for damage to or the loss of plant, materials, etc., from the site.
5.10	PROOF OF COMPLIANCE WITH THE LAW The following certificates must be provided before first delivery is taken: - HIV/STI Report (Bound into this document) - Electrical Compliance Certificate - Plumbing Compliance Certificate - Lightning Certificate - Soil Protection Certificate - Concrete test and cube certificates - Waterproofing Guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Latest National Building Regulation
5.11	INSURANCE PROVIDED BY THE EMPLOYER Not Applicable
Clause Numbers	<u>SECTION 2</u>
	<u>SPECIFICATION DATA ASSOCIATED WITH SANS 1921-2004</u>
	4.1.7 The requirements for drawings, information and calculations for which the Contractor is responsible are:
	Prefabricated roof trusses design must be submitted for approval 30 days prior to erections.
	4.2.1 The responsibility strategy assigned to the Contractor for the works is:
	Strategy A
	4.2.2 The structural engineer is:
	Royal Haskoning DHV
4.2.3	Drawings & other info are to be submitted in accordance with the contractors programme
	N/A
4.3	The planning, programme and method statement are to comply with the following:
	N/A

4.12.1	Samples of materials The work is to be executed with materials of the best specified and in the most substantial and workmanlike manner under the inspection of the Employer and to his satisfaction. The Contractor shall furnish, without delay, such samples as called for or may be called for by the Employer, who may reject all materials or workmanship not corresponding with the approved sample. The samples of materials, workmanship and finishes that the Contractor is to provide and deliver to the employer are: - Tile sample. - Brick sample. - Light fitting sample. - Screed panel 2m x 2m impact test. - Tested trial mix to be approved by the Engineer.
4.12.2	Fabrication drawings that the contractor is to provide to the employer are: None
4.12.3	Office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are: OFFICE FOR FOREMAN Provide, erect, maintain and remove at completion a suitable temporary office for the Contractor or his Foreman, perfectly secured, lighted and ventilated and having a desk with drawers. TELEPHONE The Contractor shall provide a telephone on the site for the use of the Contractor and all Sub-Contractors for the duration of the Contract, and must make the necessary application for connection, give all notices and pay all fees, rentals and charges for the service and also for all calls. OFFICE FOR INSPECTOR OF WORKS Provide, erect, maintain and remove at completion a well constructed temporary office for the Inspector of Works not less than 4 x 3 m on plan and 3 m high to eaves to the approval of the Employer. The office shall be constructed of wood framing covered externally with corrugated iron or corrugated asbestos and with a lean-to roof covered with the same material as the external wall covering. The office shall be lined internally with soft board or other approved material and a ceiling shall be provided of the same material as the internal lining. A suspended wood floor shall be provided and is to finish not less than 300 mm above the ground level. A lockable door and a window, which provides adequate light and ventilation, shall be fitted. An office constructed of 115 mm thick brick-work and provided with a screeded concrete floor and roofed and ceiled as above described may be accepted as an alternative but prior permission of the Employer will be necessary before construction of such an office is commenced and his requirements shall be stated and fulfilled by the Contractor. The office shall be fitted in an approved manner with a sloping topped desk of height and length suitable for the laying out and studying of drawings, a desk or table with not less than two lock-up drawers, shelves, seating and wash-stand, and the Contractor shall provide all necessary attendance. TELEPHONE IN OFFICE FOR INSPECTOR OF WORKS The Contractor shall arrange for the installation of a lockable telephone in the Office for the Inspector of Works for the duration of the Contract. The Contractor will be required to make the necessary application for connection and give all notices on behalf of the Employer. The Employer will, however, be responsible for the direct payment of all fees, rentals and other charges by Telkom for the service for the Inspector of Works and for all calls made from this telephone.

	SHED
	Provide, erect, maintain and remove at completion, ample temporary sheds for the proper storage of materials and for the use of the workmen, and remove when no longer required.
4.14.6	The requirement for provision and erection of signboards are: Supply, erect, maintain and remove at completion a painted notice board, size overall 2800 x 2345 mm high sign written to detail as Drawing No. T9506 which drawing is available from offices of the Department of Public Works. Only the official notice board is to be displayed on the site and no Sub-Contractor's boards will be permitted. The Contractor, at his own cost, may provide a board on which all sub-contract firms' names may be sign written. The notice board is to be to the approval of the Employer and is to be maintained in first class condition and placed where directed at the entrance to the site and remain there for the duration of the Contract.
4.17.1	Requirement for the termination, diversion or maintenance of existing services: Should the Contractor come in contact with any underground cables or pipes during excavations, immediate notification must be made to the Employer and all work in the vicinity of such cables, pipes, etc., shall cease until authority to proceed has been obtained from the Employer. Should the Contractor damage underground cables or pipes resulting in a disruption of services to an existing institution such damage shall be repaired immediately.
4.17.3	Services which are known to exist on the site: Investigate and provide detail drawings.
4.17.4	Requirement for detection apparatus None
4.18	ADDITIONAL HEALTH AND SAFETY REQUIREMENTS ARE: By the submission of a tender, any Tenderer will, if awarded the contract to which this tender document relates, be deemed to be the mandatory as envisaged by Section 37 (2) of the Act. As a mandatory the successful Tenderer will be deemed to be the "principal contractor" and an employer in his/her/their own right with duties as prescribed in the Act and accordingly will be deemed to have agreed to be solely responsible for ensuring that in connection with the service to which this tender document relates, all work will be performed and machinery and plant used in accordance with the Act. Should the Contractor, for whatever reason be unable to perform as required by the Act, the Contractor undertakes to inform the Employer accordingly. Tenderers are advised that it is a Condition of this Tender that a 'Construction Phase Safety, Health and Environmental Plan' specifically relates to the project for which tenders are being submitted and must be prepared by the Tenderer and submitted with the other tender documents at the time of tender. Failure to do so Tenderers are therefore advised to study the 'Construction Safety, Health and Environmental Specification' which is issued as part of this tender document, the Model Preambles to Trades - 2008, any project Specification included in this tender document and any and all drawings which are referred to and issued as part of this tender document before preparing their own project specific 'Construction Phase Safety, Health and Environmental Plan'. Tenderers are also advised that such a plan which is submitted with a tender but is incomplete or considered inadequate by the Employer or his Representative will invalidate the tender. The Contractor will be deemed to have satisfied himself with his obligations in terms of the Act and to have allowed for all costs arising from compliance with the Act as no claim for extra costs arising from compliance with, and obligations in terms of the Act will be entertained.
4.22	WORK BY NOMINATED AND SELECTED SUBCONTRACTORS COMPRISE: [Provide list of applicable contractors]

C3.2 - SPECIFICATION FOR HIV/AIDS AWARENESS

1 Scope

This generic specification contains requirements applicable to the reduction of the risk of transfer of the HIV virus between and among construction workers and the local community through the following four strategies:

- a) raising awareness about HIV/AIDS;
- b) providing construction workers with access to condoms;
- c) HIV counselling, testing and referral services; and
- d) Sexually Transmitted Infection diagnosis and treatment.

2 Normative references:

The following standard contains provisions that, through reference in this text, constitute provisions of this standard:

SANS 4074 ISO 4074, *Condom Rubbers*

3 Definitions and Abbreviations

3,1 Definitions

Construction Worker: all persons in the employ of the contractor or in the employ of any of the subcontractors contracted by the contractor.

Local Community: the communities local to the site which are most likely to have contact with the construction worker and, in particular, sex workers in those communities.

Service provider: the natural or juristic person recognised by the South African Department of Health as specialist in conducting Aids Awareness Programmes.

3,2 Abbreviations

STI: Sexually transmitted infection

HIV: Human Immunodeficiency Virus

AIDS: Acquired Immune Deficiency Syndrome

4 Objectives

The objectives are to:

- a) reduce the risk of transfer of the HIV virus between and among construction workers and the local community;
- b) raise awareness amongst construction workers and the local community of the risk of infection with the HIV virus;
- c) promote early diagnosis; and
- d) assist affected individuals to access care and counselling.

5 Requirements

5,1 General requirement

The contractor shall, in order to satisfy the objectives stated in 4:

- a) make condoms complying with the requirements of SABS ISO 4074 available to all construction workers at readily accessible points on the site, suitably protected from the elements, for the duration of the contract;
- b) either place and maintain HIV/AIDS awareness posters of size of not less than A1 in areas which are highly trafficked by construction workers, or provide construction workers with a pamphlet, in languages largely understood by construction workers, which
- c) encourage voluntary HIV/STI testing;
- d) provide information concerning counselling, support and care of those that are infected services; and
- e) comply with the requirements of 5.2.

The provisions of 5.1 c) and d) do not apply to this contract.

5.2 HIV awareness programme

5.2.1 The contractor shall:

- a) engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme which is structured to achieve the outcomes stated in 5.2.3 for contract workers as soon as a construction workers camp is established and populated or, where no such camp is established, within two weeks of the commencement of a significant portion of the works and at subsequent intervals, if any, provided for in the scope of works; and
- b) arrange for, provide a suitable venue, and instruct all construction workers to attend the HIV Awareness Programme and notify the Employer's Representative of the date, time and venue whenever a session with construction workers is conducted.

Note: The National Department of Public Works maintains a list of qualified service providers.

5.2.2 The contractor shall do nothing to dissuade construction workers from attending such an HIV Awareness Programme and shall take all reasonable steps to ensure that a minimum of 90% of construction workers engaged in the works attend such a programme, when it is conducted.

5.2.3 The outcomes of the HIV Awareness Programme shall as a minimum, result in contract workers exposed to such a programme being able to:

- a) communicate the existence of problems of HIV and be able to outline the consequences of transmission of HIV to or from the local community;
- b) recall and communicate the mode of HIV transmission and preventative measures including the proper use of the condom.

The HIV/ Aids awareness programme described in 5.2 is to be repeated at four month intervals throughout the duration of the contract. (Four times in total, including the initial one at the start of the contract)

5.3 Reporting

5.3.1 The contractor shall prepare and attach to his claims for payment a brief report which outlines how the actions taken by the contractor in the period for which payment is claimed satisfy the requirements and a schedule which lists the names, identity numbers, trade / occupation and name of employer of all construction workers exposed to the programme (see **HIV/STI Compliance Report**).

- 5.3.2** The employer's representative shall certify the report and schedule described in 5.3.1 whenever a claim for payment is issued to the employer.

Note: In the event that the contractor fails to satisfy the requirements of this specification, the employer (Head: Public Works) may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum.

The *HIV /Aids* awareness programme described in 5.2 shall in addition *be conducted* for the benefit of the local community on two occasions in the community centre nearest to the building site. The contractor shall be *responsible* for inviting identifiable community-based *institutions and organisations, churches, and schools to participate in the programme.*

C3.3 - HIV/STI COMPLIANCE REPORT

Pro-forma reporting format in terms of the SPECIFICATION FOR HIV/AIDS AWARENESS

Project Code:

059789

Payment Claim number:

Period covered by payment claim:

1. Distribution of condoms (briefly describe where and how condoms are distributed).

2. Posters / pamphlets (briefly describe where posters were placed / how pamphlets were distributed).

3. Voluntary testing (briefly describe the actions taken / information provided to promote testing).

4. Counselling, support and care (summarise information provided).

5. HIV awareness programme (briefly describe action).

6. Schedule of construction workers exposed to the HIV awareness programme.

Name	Identity number	Trade / occupation	Name of employer

[illegible]

I hereby declare the above to be a true reflection of actions taken to ensure compliance with the specification.

For Contractor:

Name: _____

Signature: _____

Date: _____

Employer's representative:

Name: _____

Signature: _____

Date: _____



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

PART C4. SITE INFORMATION

C4.1 SITE INFORMATION
GCC FOR CONSTRUCTION WORKS (2 Edition of 2010)

Project title:	SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES		
Tender No.	ZNTM01182W	Project Code:	059789

C4.1 Site Information

C4.1 GENERAL

- (a) Ground – brick and tar paving
Water table – n/a

- (b) Site establishment area is available, Client will advise, Site storage is available, but limit site storage to the proximity of access to material and manufacturing in the city, Client will advise, Site restrictions, it's a working environment with people and vehicles, although alternative access could be arrange, Client will advise, Alternative office space, a Decanting proposal is included in this document as annexure 14, but is subject to Client approval, there is a possibility of working after hours but the Client will have to approve.

- (c) Location – DOT HEAD OFFICE PRECINCT 172 BURGER STREET, INKOSI MHLABUNZIMA
Phasing – n/a

C4.2 GEOTECHNICAL INVESTIGATION REPORT

- (a) Not applicable



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

PART C5 - DRAWINGS / ANNEXURES

C5.1 - LIST OF DRAWINGS/ANNEXURES

SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES

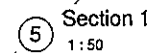
Tender No.:	ZNTM01182W	Project Code:	059789
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(Where drawings/annexure's are issued, document compilers must insert the following paragraph and list the applicable drawings/annexure's below.)

The following drawings/annexure's shall be issued during the Tender period to form part of the tender documentation. Where applicable, drawings/annexure's could be re-issued to the Contractor at commencement of the construction phase.

<u>DRAWING NO</u>	<u>DESCRIPTION</u>
059789/2016/S1	Security Office plan, elevation & section
059789/2016/D-C1	Block C- GRD Floor Demolition Plans
059789/2016/D-C2	Block C- GRD Floor Plan
059789/2016/D-C3	Block C- First Floor Plan
059789/2016/D-C4	Block C- 3RD Floor Plan
059789/2016/D-C6	Block C- Roof Plan
059789/2016/D-C7	Block C- Elevations
059789/2016/D- EX1	Executive Block - GRD Floor and First Floor Plans
059789/2016/D- EX2	Executive Block - 2nd Floor and 3rd Floor Plans
059789/2016/D- EX3	Executive Block - 4th Floor and Roof Plans
059789/2016/D- EX4	Executive Block - Section A-A
059789/2016/00-R1	Site Plan
DOT-FSD-190-000	Block C- Ground floor
DOT-FSD-190-001	Block C- First floor
DOT-FSD-190-002	Block C- Second floor
DOT-FSD-190-003	Block C- Third floor
DOT-FRA-190-000	Block C- Ground floor
DOT-FRA-190-001	Block C- First floor
DOT-FRA-190-002	Block C- Second floor
DOT-FRA-190-003	Block C- Third floor
DOT-FRA-190-01	Executive Block - First Floor
DOT-FRA-190-02	Executive Block - Second Floor
DOT-FRA-190-03	Executive Block - Third Floor
DOT-FRA-190-04	Executive Block - Fourth Floor
DOT-FEB-190-04	Smoke detector Layout- Executive Block 4th Floor
DOT-SPF-190-004	Block C- Stairway and elevator shaft pressurizing system
WIMS NO/059789/A0	Rational Fire Design Standard layout
WIMS NO/059789/A1	Ground level Rational Fire Drawing
WIMS NO/059789/A1	First level Rational Fire Drawing
WIMS NO/059789/A1	Block C- First Floor Plan

ANNEXURES	
Annexure 1	Model Preambles for Trades 2008
Annexure 2	General Electrical Specifications
Annexure 3	Lightning Protection Specifications
Annexure 4	Map of Tender submission location
Annexure 5	Joint Venture Agreement
Annexure 6	#REF!
Annexure 7	Health and Safety Specification
Annexure 8	Health and Safety Bill of Quantities
Annexure 9	Builders Lien Agreement
Annexure 10	EPWP Scope of work
Annexure 11	Attendance Register - Infrastructure and Other projects
Annexure 12	EPWP Data Collection tool for Phase 3 system
Annexure 13	Registration and Business form



WORK OMITTED

WORK OMITTED

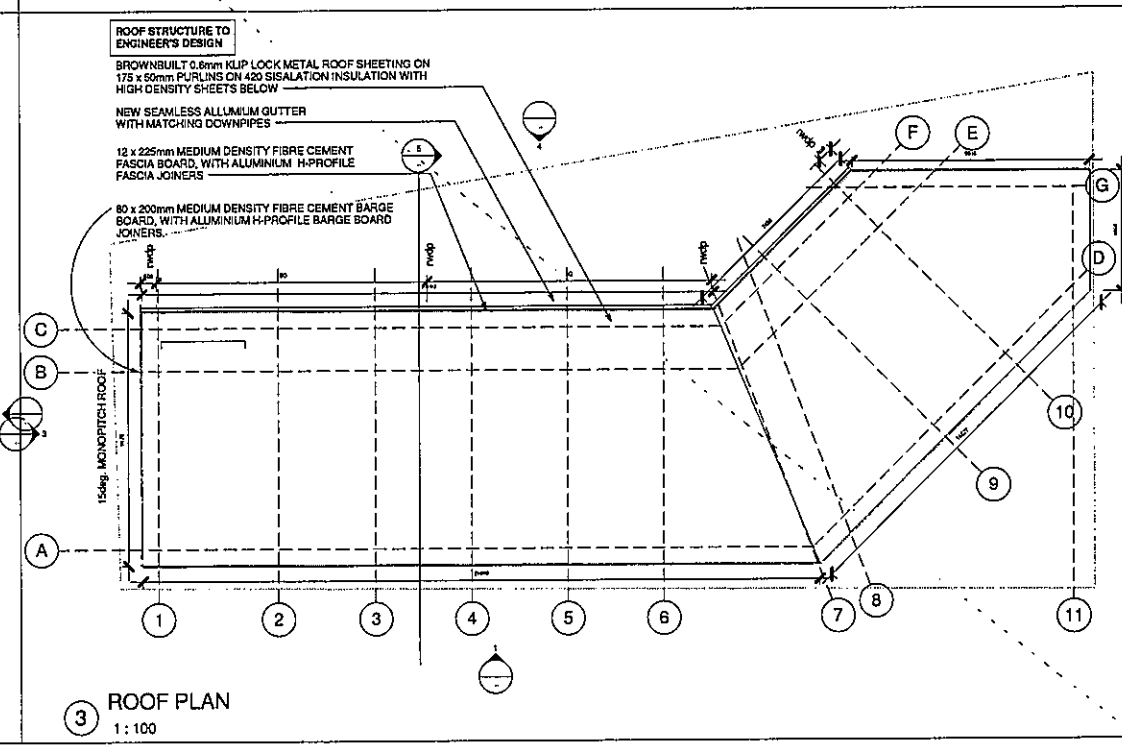
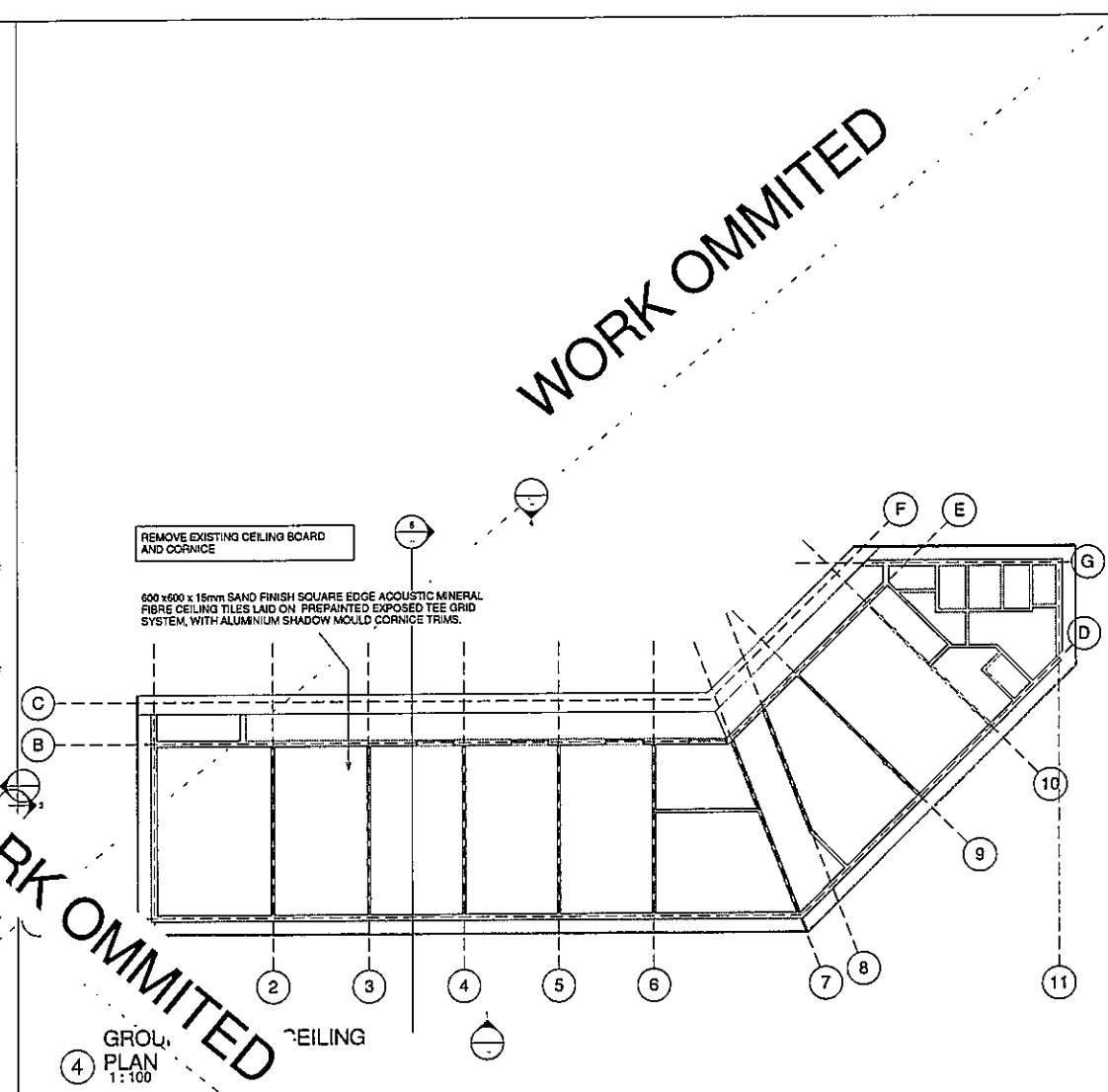
Agape CDC Architects
38 McKay Drive,
Ashburton.

[illegible]

REPAIRS TO EXECUTIVE BLOCK
AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHs
AT BLOCK C

BLOCK B
ELEVATIONS, SECTION, DETAILS

Project Number	WIMS 059789
Date	AUG 2016
Drawn By	Author
Checked By	Checker
059789/2016/D-B2	
■ ■	
Scale	As Indicated



WORK OMITTED



public works
Department
Public Works
PROVINCE OF MADRAS

[illegible]

REPAIRS TO EXECUTIVE BLOCK
AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAS
AT BLOCK C

**BLOCK B
DEMOLITION PLAN, FLOOR PLAN,
CEILING PLAN, ROOF PLAN,**

Project Number	WIMS 059789
Date	AUG 2016
Drawn By	BM
Checked By	SM

059789/2016/D-B1

Scale	As indicated
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DEPARTMENT OF TRANSPORT

Agape CDC Architects
38 McKay Drive,
Ashburton.

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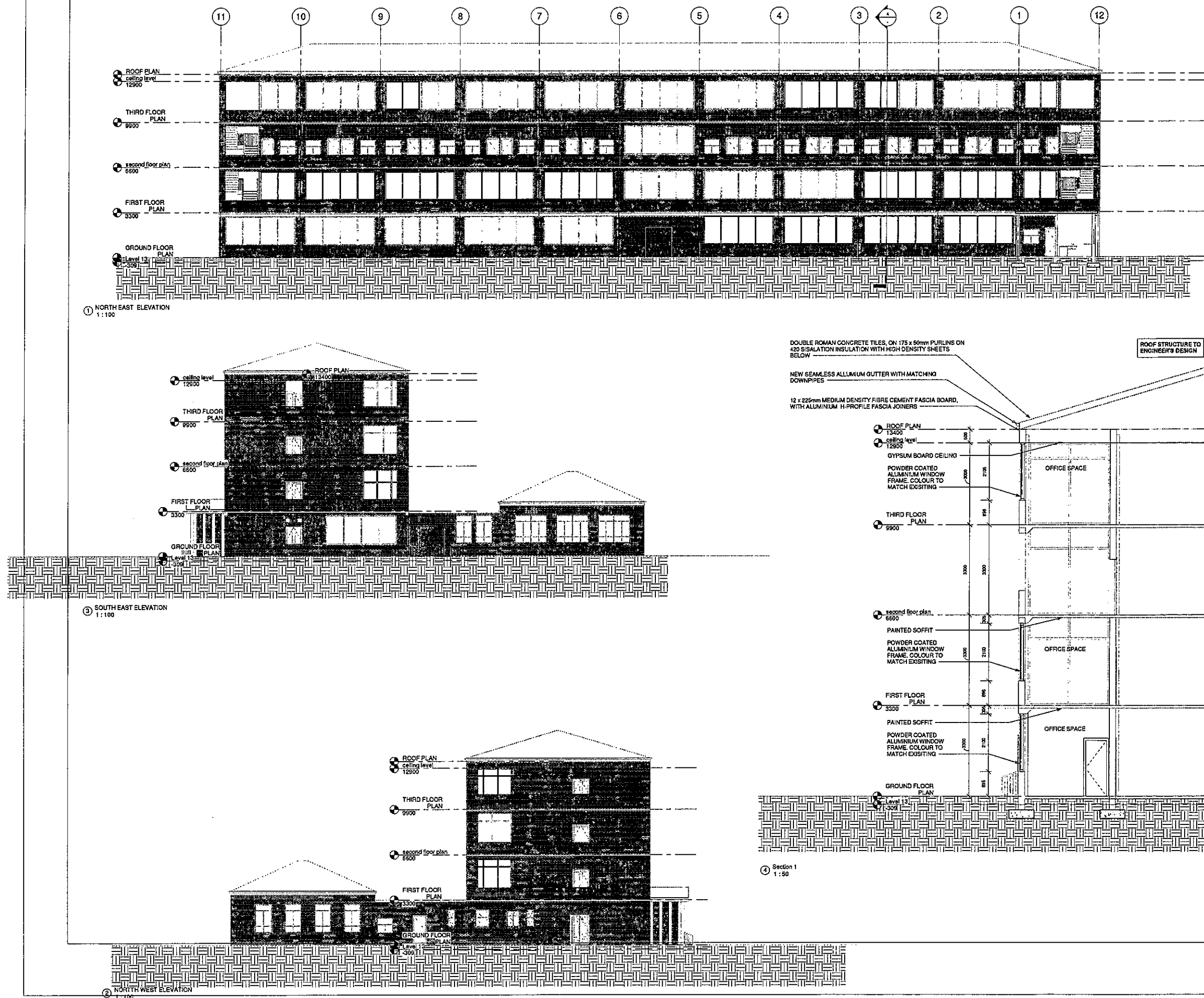
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AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHS
AT BLOCK C

BLOCK C
ELEVATIONS

Project Number	059789
Date	24/10/2016
Drawn By	BM
Checked By	SM

059789/2016/D-C7

Scale	As indicated
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Ashburton.

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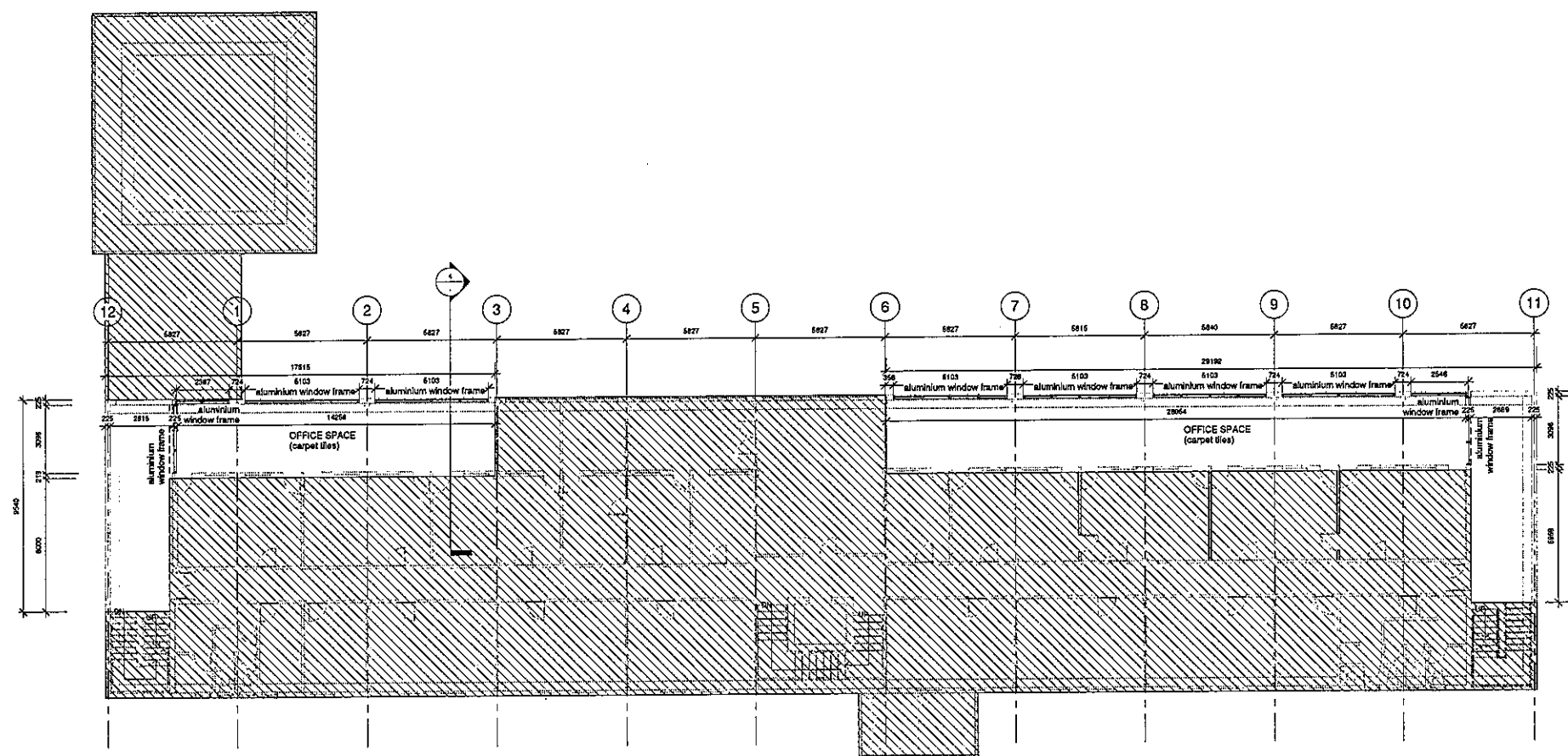
REPAIRS TO EXECUTIVE BLOCK
AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHS
AT BLOCK C

**BLOCK C
FIRST FLOOR PLAN**

Project Number	059789
Date	24/10/2016
Drawn By	BM
Checked By	SM

059789/2016/D-C3

Scale 1 : 100



① FIRST FLOOR PLAN
1:100

[illegible]

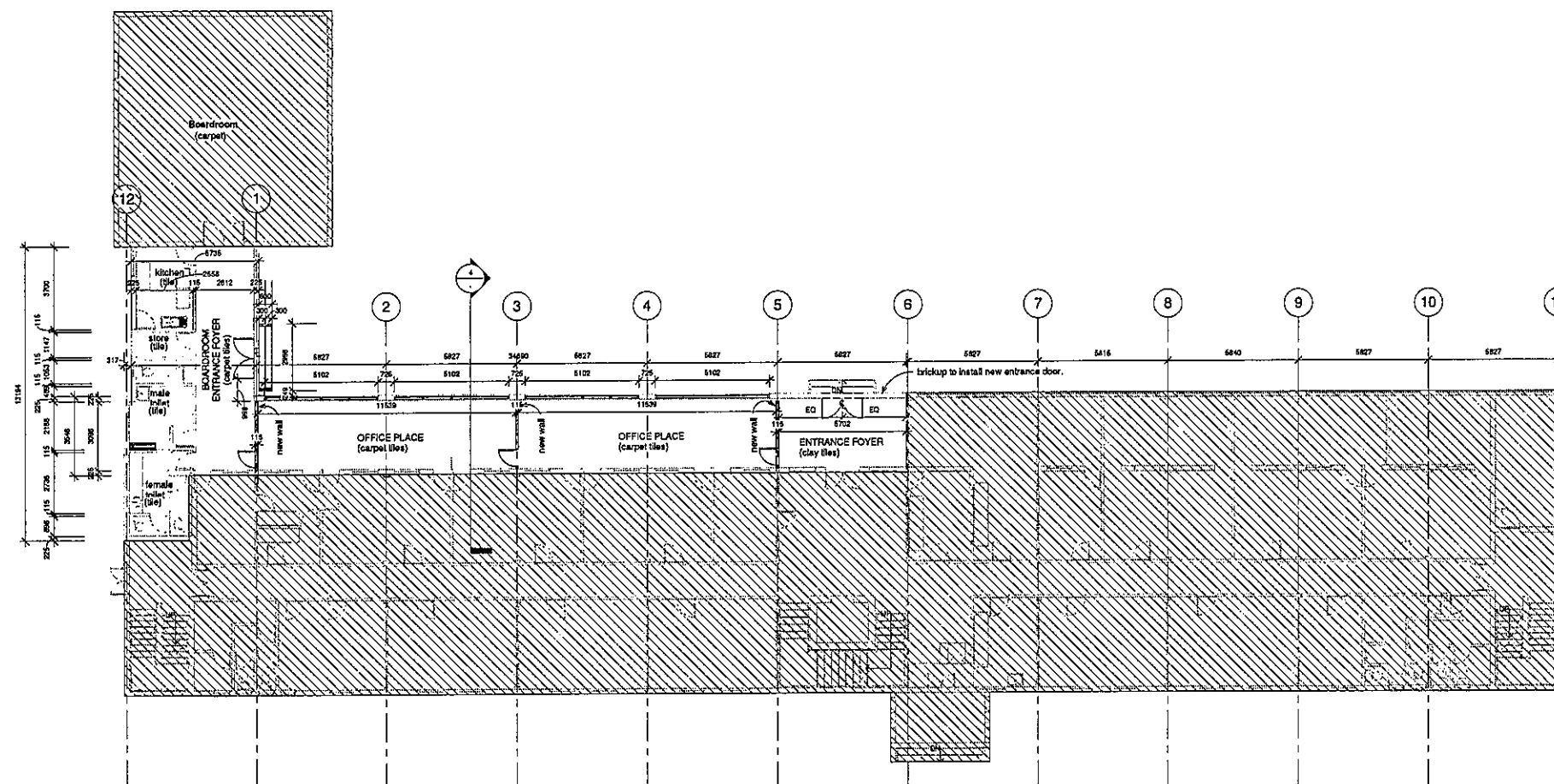
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AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHS
AT BLOCK C

BLOCK C
GROUND FLOOR PLAN

Project Number	059789
Date	24/10/2016
Drawn By	BM
Checked By	SM

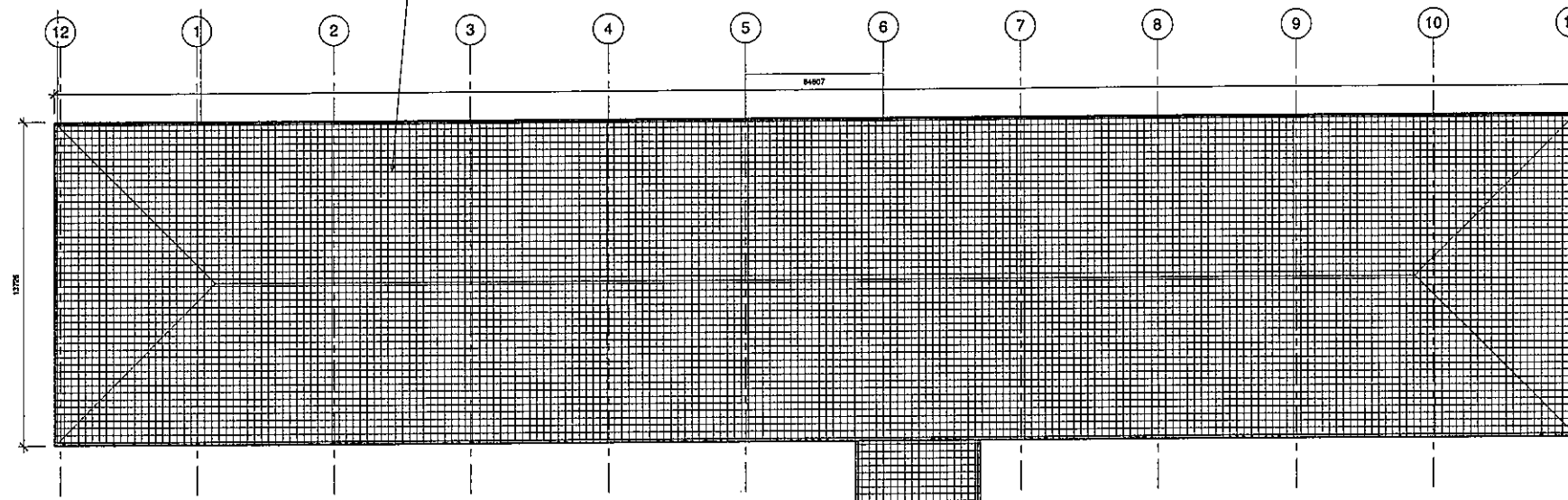
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Scale 1 : 100

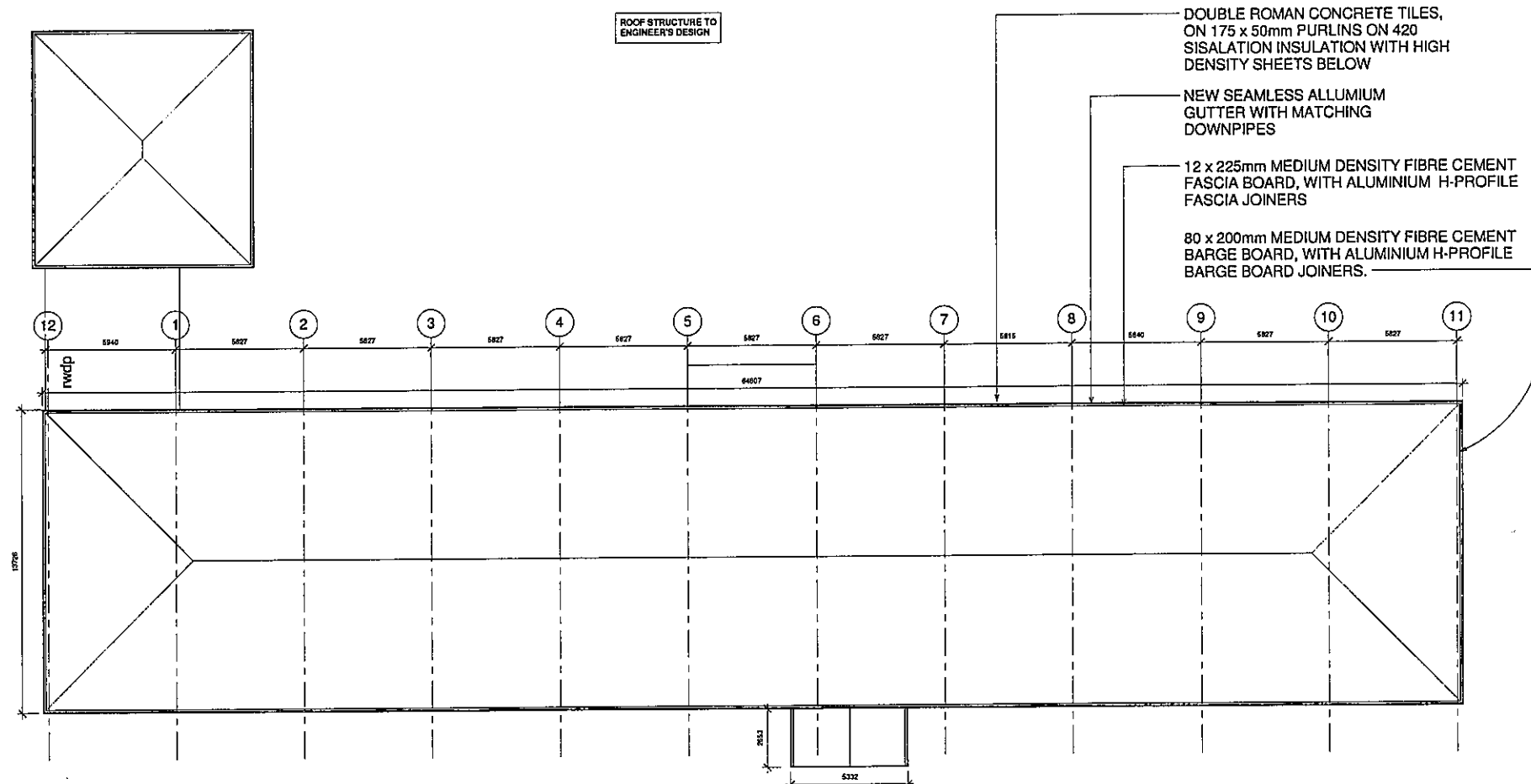


① GROUND FLOOR PLAN
1 : 100

REMOVE ROOF TILES,
FASCIA BOARD, BARGE BOARDS,
DOWNPIPES.



① ROOF DEMOLITION PLAN
1:100



② ROOF PLAN
1:100



Agape CDC Architects
38 McKay Drive,
Ashburton.

[illegible]

REPAIRS TO EXECUTIVE BLOCK
AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHS
AT BLOCK C

BLOCK C
ROOF PLAN

Project Number	059789
Date	24/10/2016
Drawn By	Author
Checked By	Checker

059789/2016/D-C6

Scale 1 : 100



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Ashburton.

[illegible]

REPAIRS TO EXECUTIVE BLOCK
AND B BLOCK ROOF
AND ENCLOSINGS OF GROUND
AND 3RD FLOOR VERANDAHS
AT BLOCK C

EXECUTIVE BLOCK
GROUND FLOOR PLAN, FIRST FLOOR PLAN

Project Number	050300
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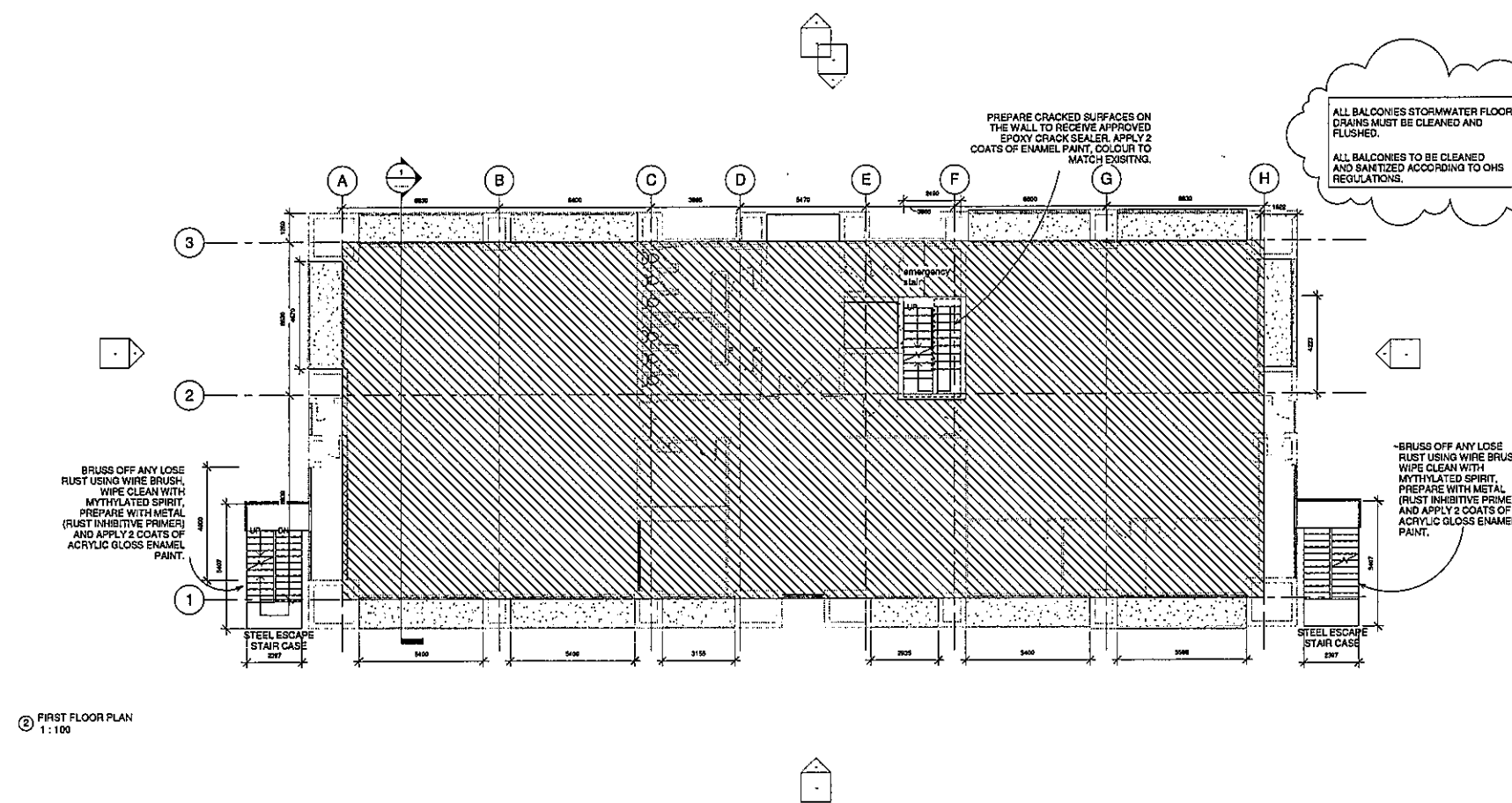
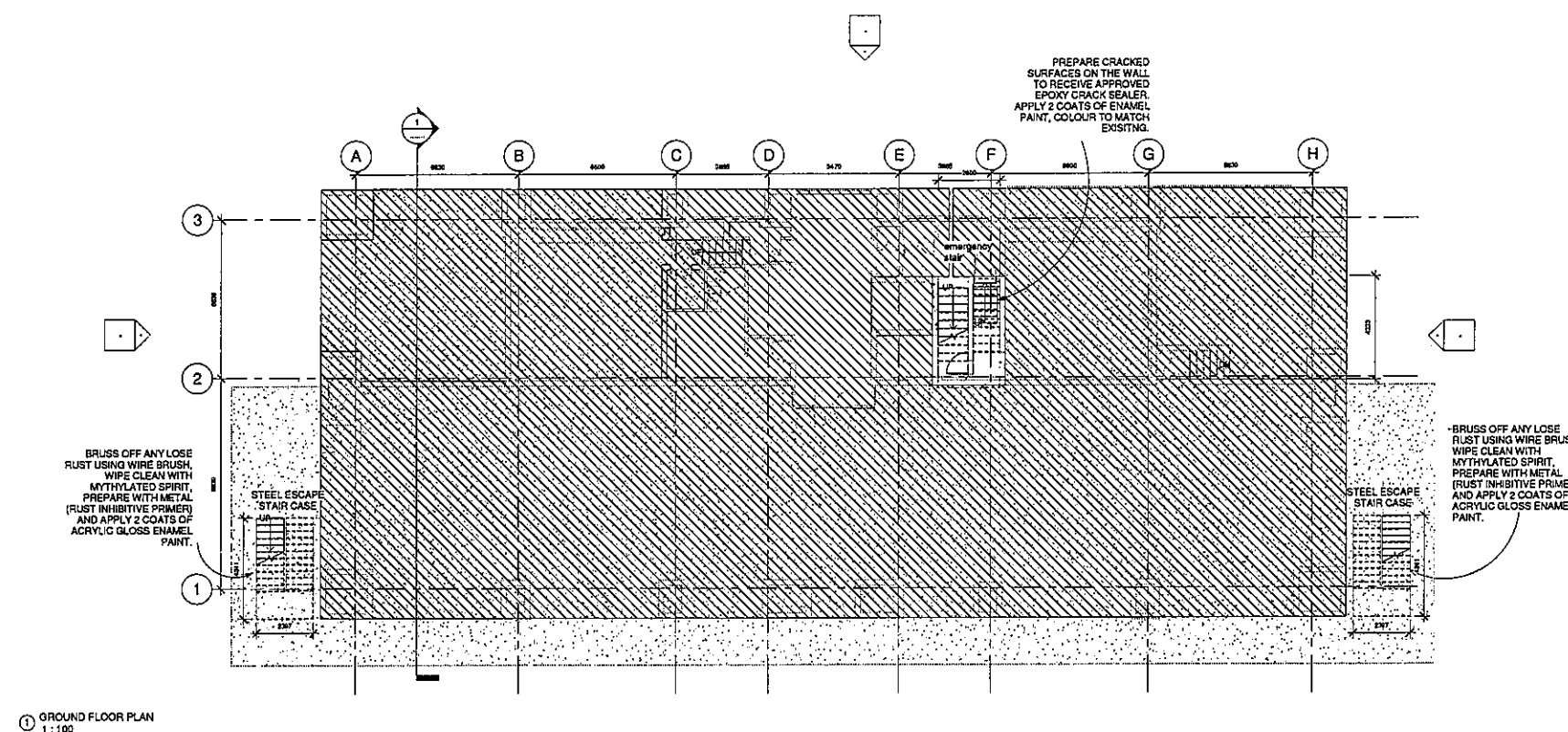
Date	24/10/2016
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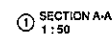
Drawn By	BM
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Checked By	SM
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059789/2016/D-EX1

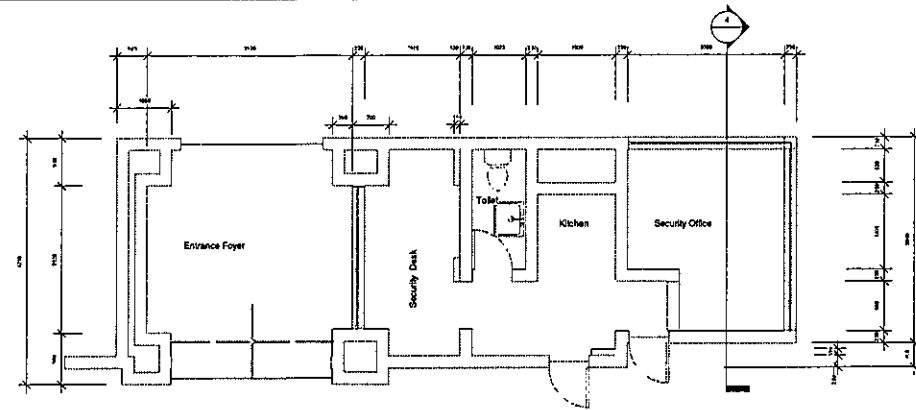
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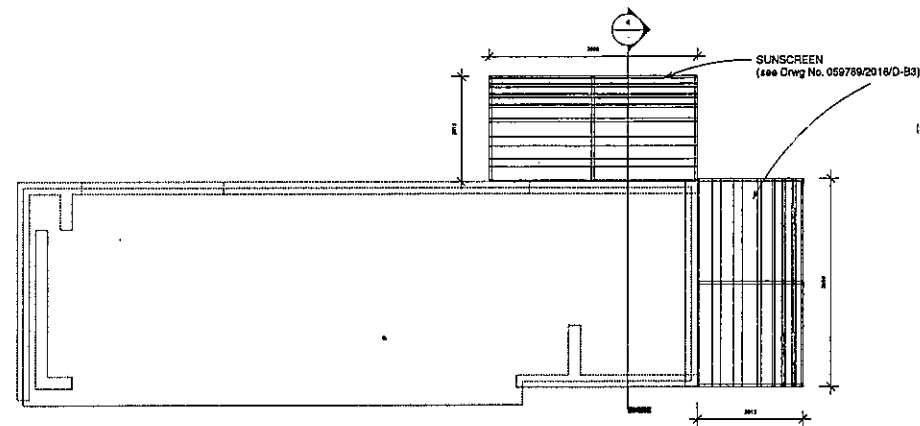


**6. 2nd & 4th FLOOR - EXISTING VERANDA SOFFIT
CEILING BRICK PANELS MUST BE REMOVED IN ALL
BALCONIES. (059789/2016/D-EX3)**

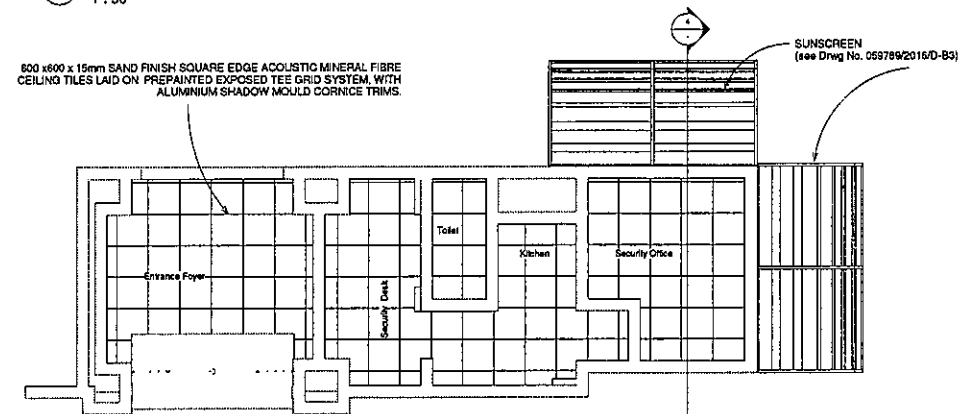
Scale 1 : 50



① Ground Floor Plan
1:50



② Roof Plan
1:50



③ Ceiling Plan
1:50

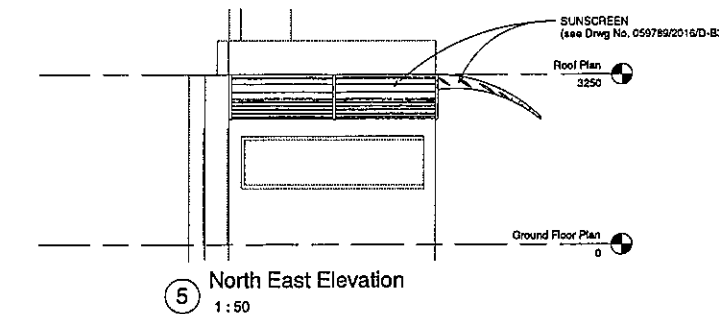
NOTE:
1. REMOVE EXISTING SUNSCREEN AND MAKE GOOD.
2. REMOVE EXISTING CEILING AND MAKE GOOD.
3. ROOF SLAB RE-WATERPROOFING DONE ACCORDING TO STRUCTURAL ENGINEER'S INSTRUCTIONS.

STRIP EXISTING WATERPROOFING AND MAKE GOOD. APPLY BITUMEN PRIMER. APPLY ONE LAYER OF 4MM TORCH ON WATERPROOFING MEMBRANE FINISHED WITH 2 COATS OF BITUMEN ALUMINIUM PAINT DONE TO MANUFACTURERS SPECIFICATION.

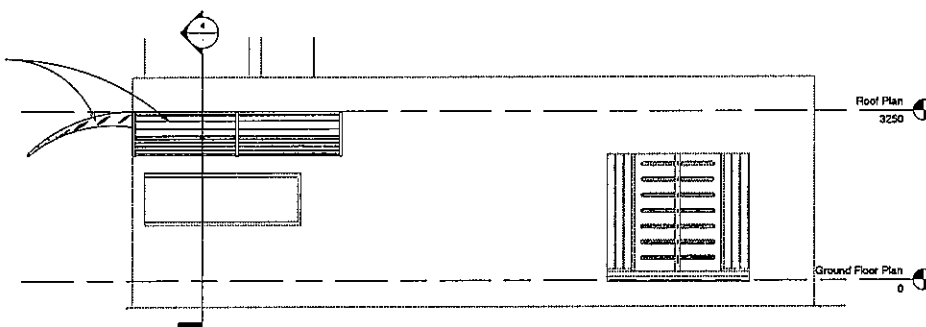
600 x 600 x 15mm SAND FINISH SQUARE EDGE ACOUSTIC MINERAL FIBRE CEILING TILES LAID ON PREPAINTED EXPOSED TEE GRID SYSTEM WITH ALUMINIUM SHADOW MOULD CORNICE TRIMS.

RAINWATER LEAK TOP OF SECURITY GLAZING MUST BE INSPECTED AND SEALED WITH AN APPROVED SEALANT.

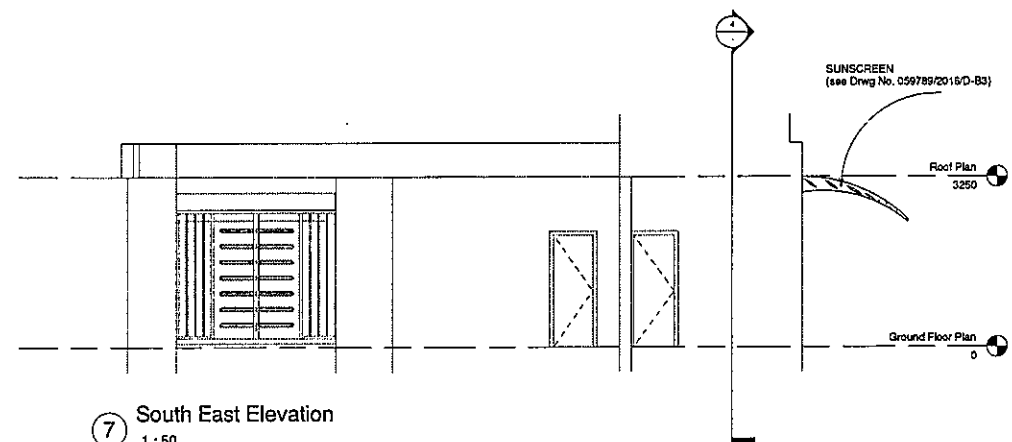
INTERNAL WALLS MUST BE PREPARED TO RECEIVE 2 COATS "WALL & ALL" PAINT. COLOUR TO ARCHITECT.



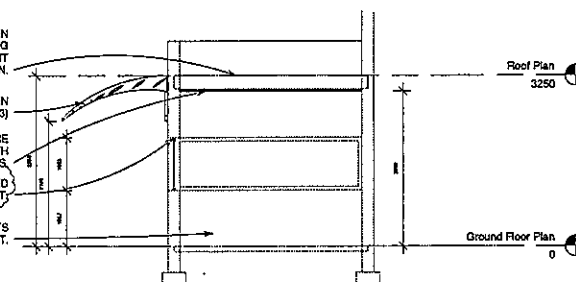
⑤ North East Elevation
1:50



⑥ North West Elevation
1:50



⑦ South East Elevation
1:50



④ Section A-A
1:50

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Professional Consultant

NAME: SIGNATURE: DATE:

Agape CDC Architects
38 McKay Drive, Ashburton.



public works

Department:
Public Works
PROVINCE OF KWAZULU-NATAL
SOUTHERN REGION

Revisions

No.	Description	Date
1	Revision 1	Date 1
1	Rainwater leak top of security glazing	Nov 2021

Project:

REPAIRS TO EXECUTIVE BLOCK
AND 8 BLOCK ROOF
AND ENCLOSURES OF GROUND
AND 1ST FLOOR VERANDAH
AT BLOCK C

Drawing description:

SECURITY OFFICE
PLAN, ELEVATIONS & SECTION

DOPW Drawing Number

Project Number

Date

Issue Date

Drawn By

BM

Checked By

SM

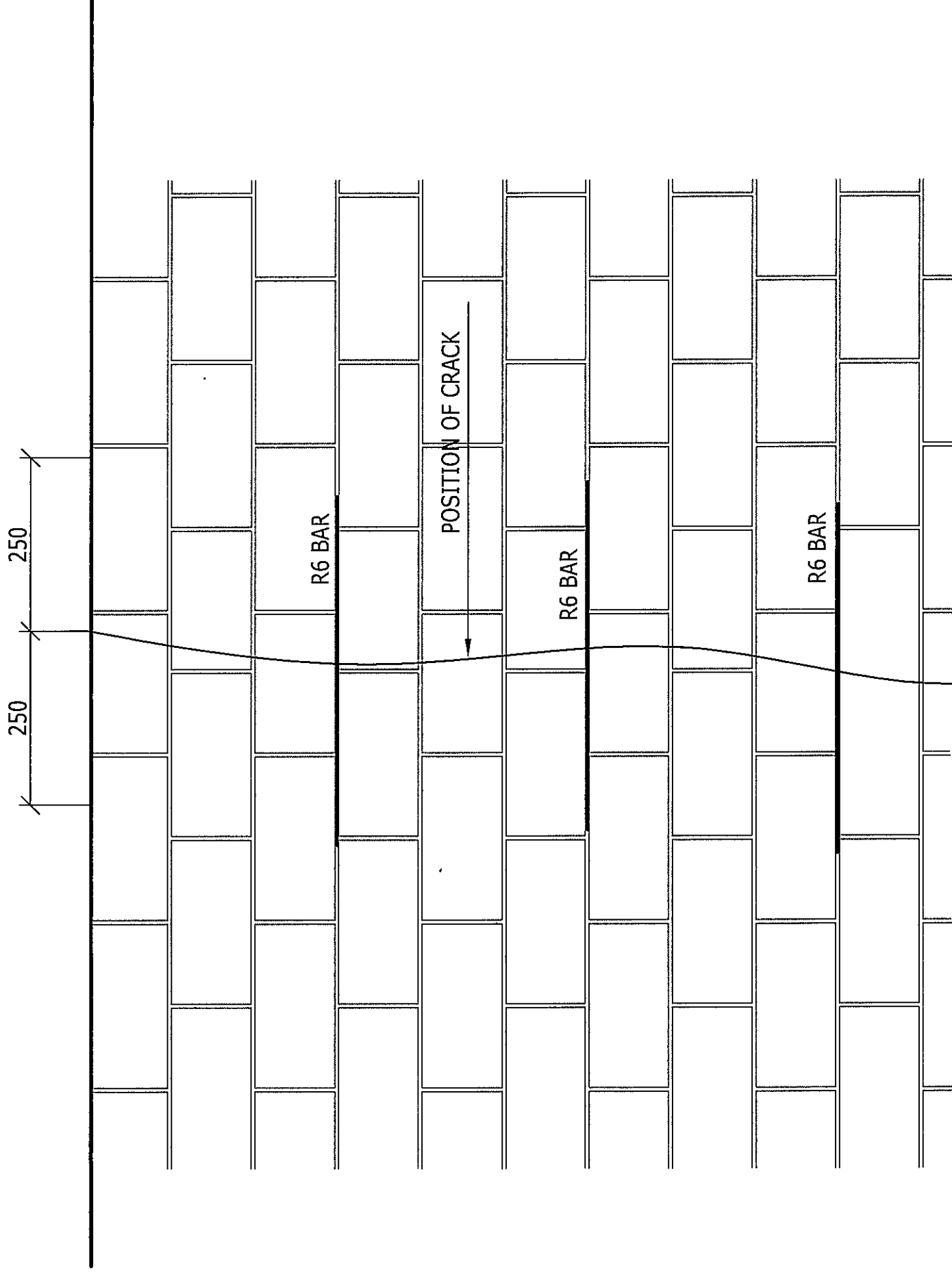
Architects Drawing Number

059789/2016/D-S1

Scale

1:50

Stamped by Plans Approval Committee



NOTES

- * RAKE OUT EXISTING MORTAR FOR 250mm EACH SIDE OF CRACK AT EVERY THIRD COURSE
- * PLACE NEW MORTAR TO HALF DEPTH
- * INSERT R6 STEEL BAR 500mm LONG INTO JOINT
- * FILL REMAINDER OF JOINT WITH MORTAR ENSURING IT IS PACKED AGAINST STEEL BAR
- * COMPLETE WALL FINISHES TO ARCHITECTS DETAIL

DETAIL FOR REMEDIAL WORK TO VERTICAL CRACK

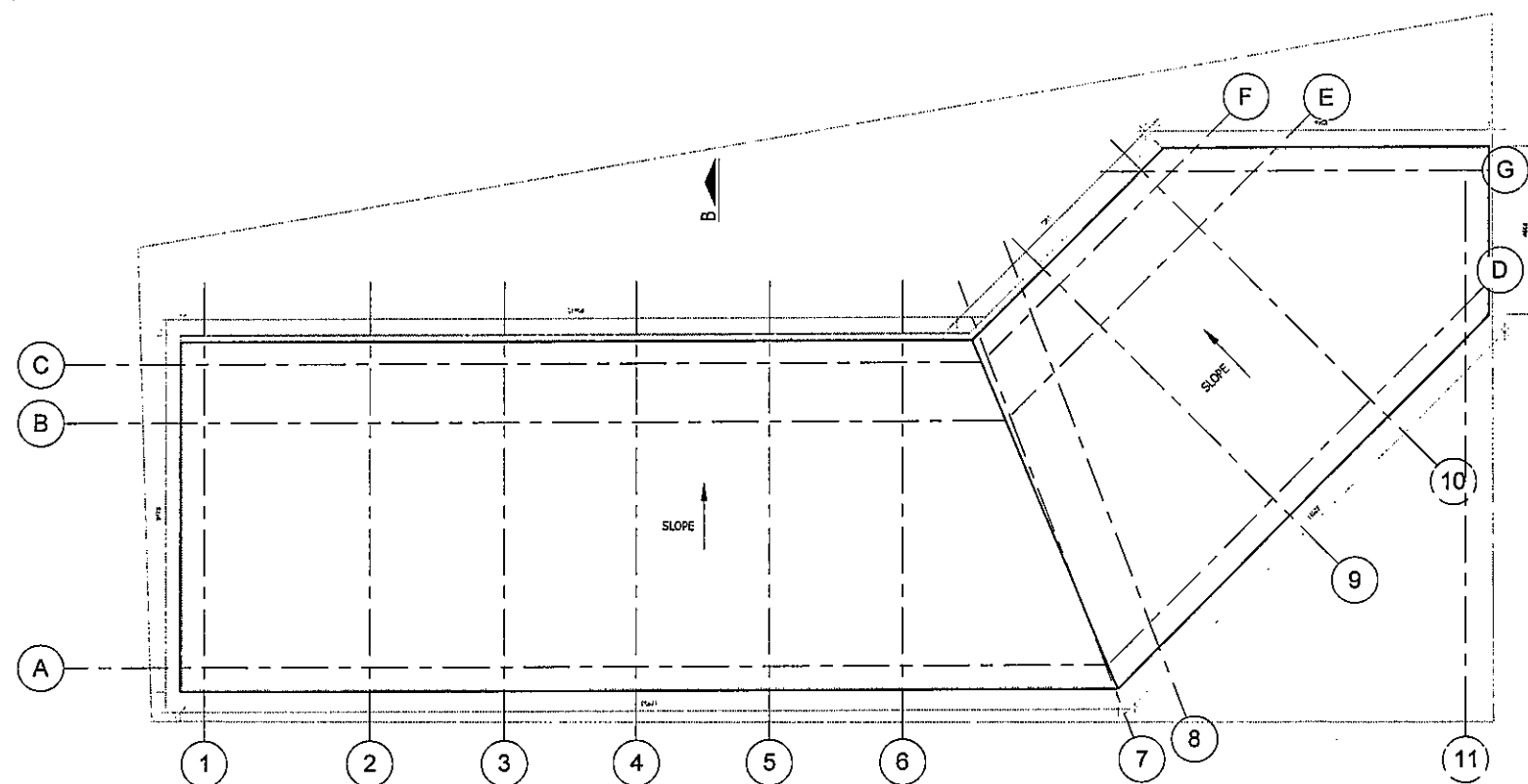
1 : 10



30 MONTROSE PARK BLV.
VICTORIAL COUNTRY CLUB ESTATE
MONTROSE
3200
P.O. BOX 1065
PIETERMARITZBURG
3200

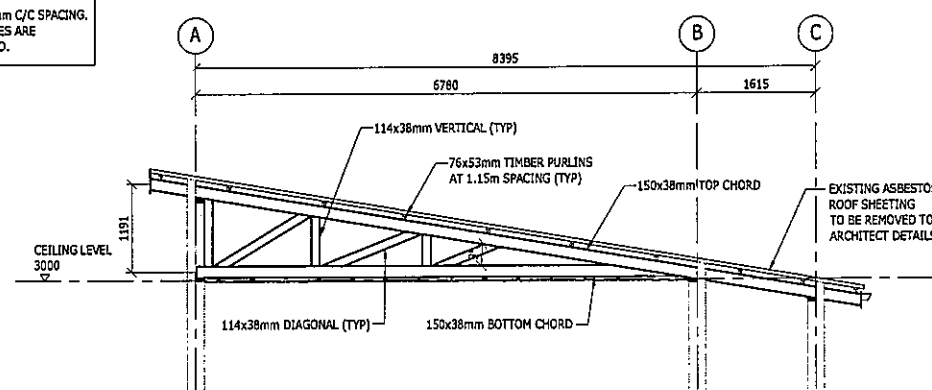
TEL: 033-328 1000
FAX: 033-328 1006

TITLE			
DOT EXECUTIVE BLOCK REMEDIAL WORK TO VERTICAL CRACKS			
PROJECT No. MD1083	SCALE AS SHOWN	SKETCH No. 1083-01	REV A
APPROVED : FK	DRAWN RS	CHECKED FK	DATE 07-11-16
			DATE 07-11-2016



BLOCK B ROOF LAYOUT PLAN
SCALE 1:100

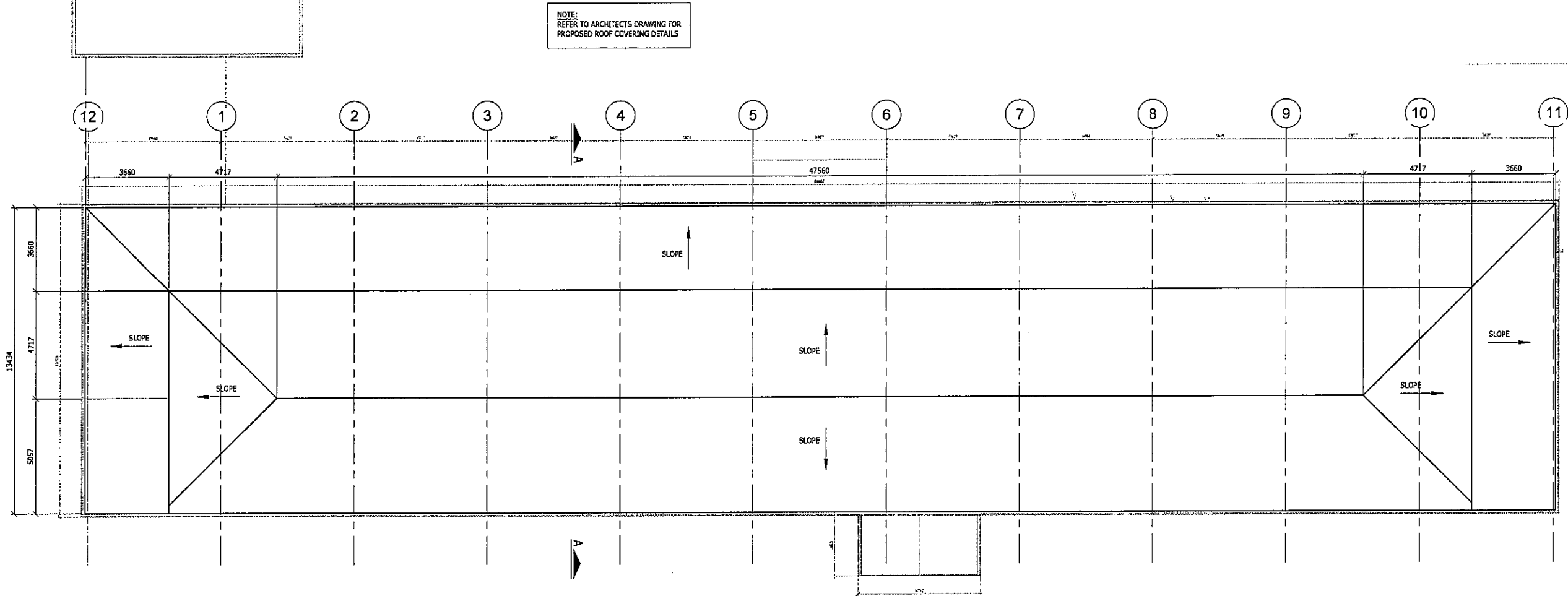
NOTE:
1. TRUSSES AT 1400mm C/C SPACING.
2. ALL TIMBER TRUSSES ARE
STRUCTURALLY SOUND.



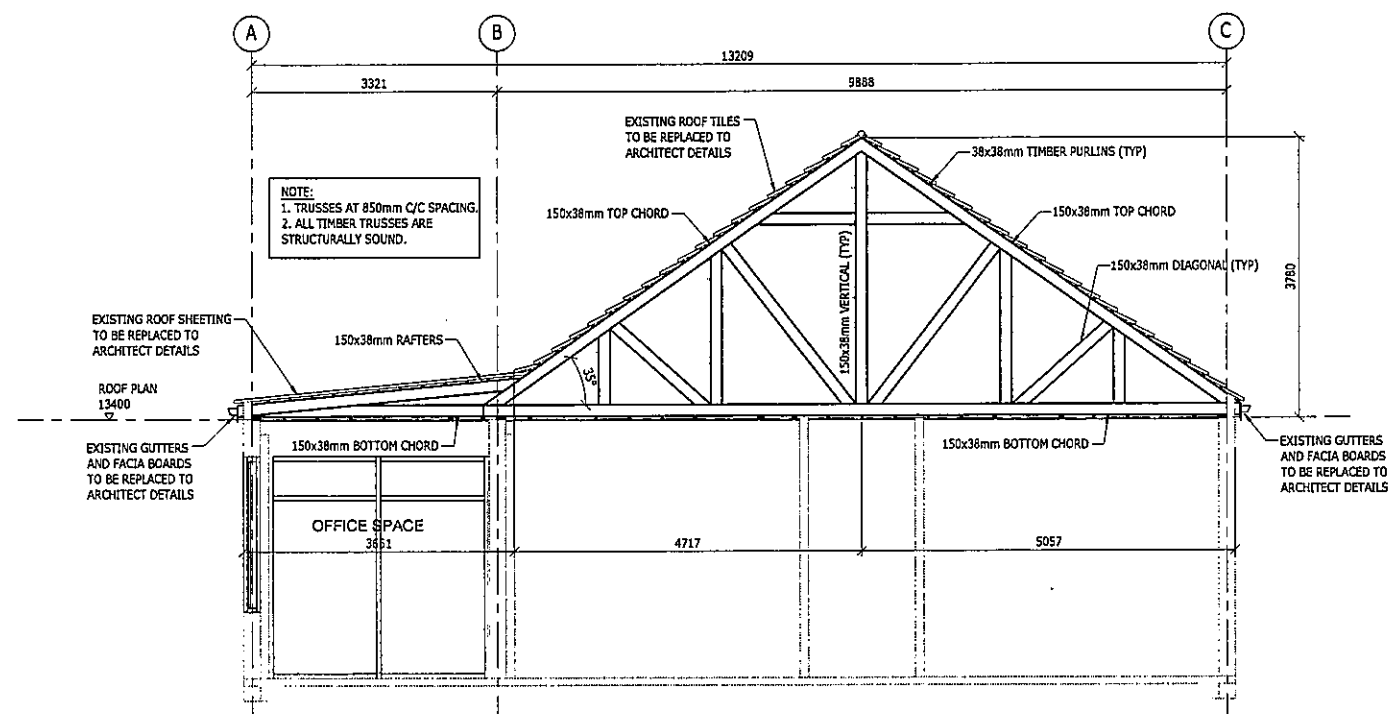
SECTION B-B
SCALE 1:50

FOR INFORMATION

No.	Description	Date	By
Rev 0A	Preliminary - Issued For DRC	14/11/2016	FK
CLIENT DEPARTMENT SIGNATURES:			
FACILITY STAMP:			
FACILITY MANAGER			
INFRASTRUCTURE MANAGER			
GENERAL MANAGER			
Checked by Professional Consultant			
Name F. KAMBA			
Signature			
Professional:			
			
Client:			
 public works Department: Public Works PROVINCE OF KWAZULU-NATAL			
SOUTHERN REGION			
Project			
DEPARTMENT OF TRANSPORT REPAIRS TO EXECUTIVE BLOCK, BLOCK B ROOF AND BLOCK C VERANDAH ENCLOSURES AND ROOF			
Drawing Description			
BLOCK B ROOF LAYOUT			
Drawn RS Date 14/11/16			
Scale/s AS SHOWN			
Consultant Drawing Number MD1083-110 Rev 0A			
DOPW Drawing Number			
WMS/WCS NO 058833			
Stamped By Plan Approval Committee			



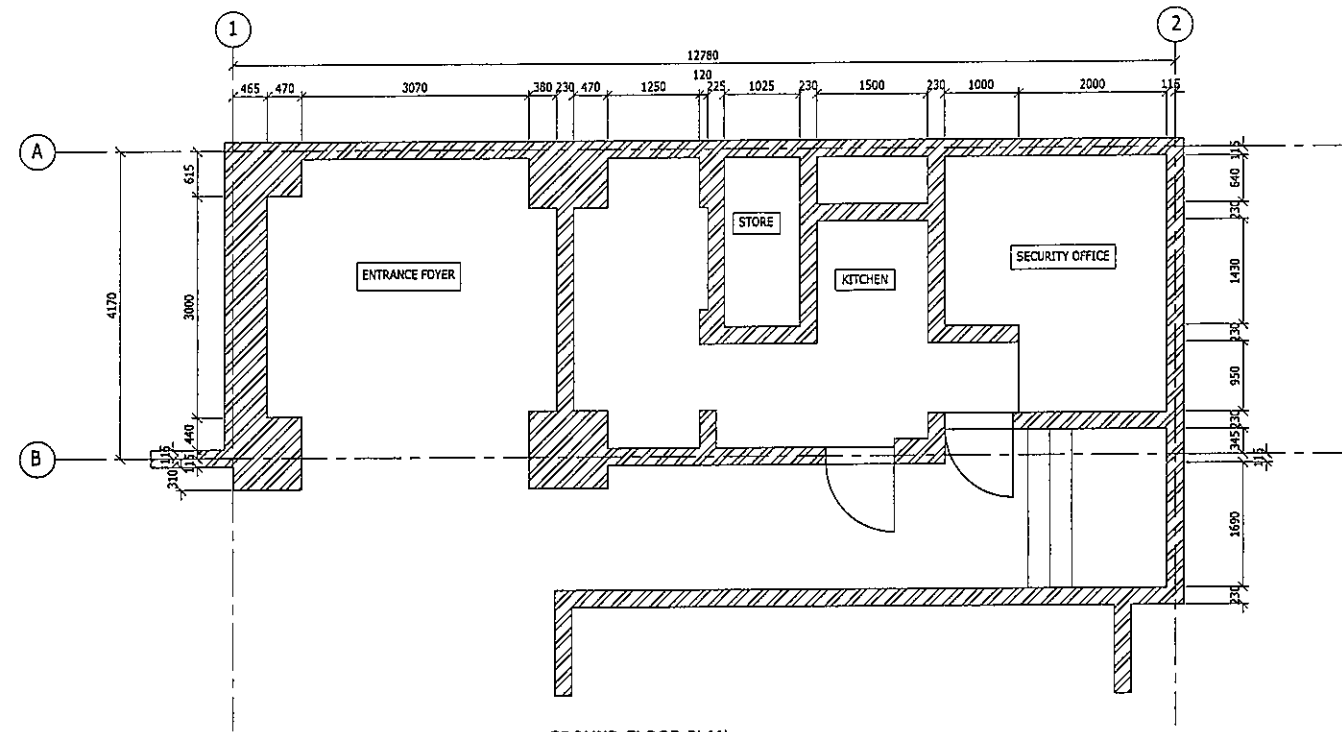
BLOCK C ROOF LAYOUT PLAN
SCALE 1:100



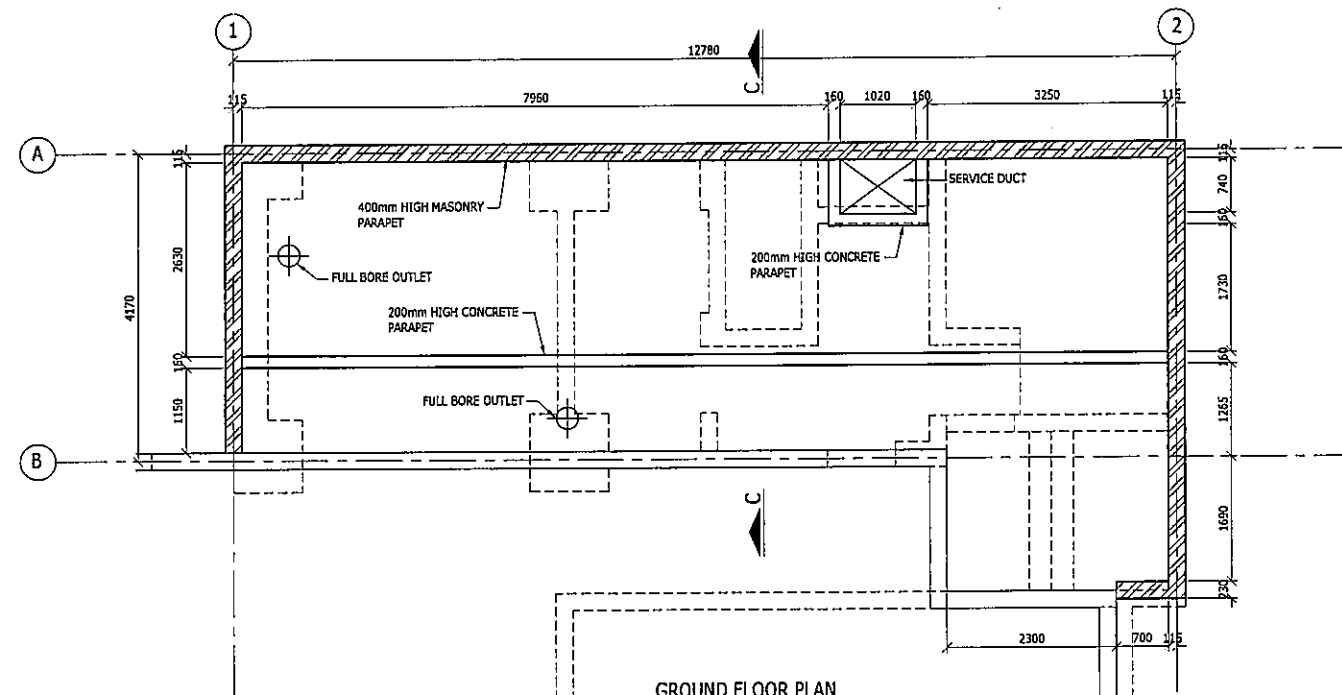
SECTION A-A
SCALE 1:50

FOR INFORMATION

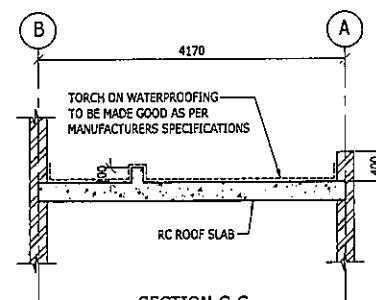
No.	Description	Date	By
Rev 0A	Preliminary - Issued For DRC	14/11/2016	FK
CLIENT DEPARTMENT SIGNATURES:			
FACILITY STAMP:			
FACILITY MANAGER			
INFRASTRUCTURE MANAGER			
GENERAL MANAGER			
Checked by Professional Consultant			
Name F. KAMBA			
Signature F. Kamba			
Professional: 14.11.16			
Date			
			
Client:			
			
public works Department: Public Works PROVINCE OF KWAZULU-NATAL			
SOUTHERN REGION			
Project			
DEPARTMENT OF TRANSPORT REPAIRS TO EXECUTIVE BLOCK, BLOCK B ROOF AND BLOCK C VERANDAH ENCLOSURES AND ROOF			
Drawing Description			
BLOCK C ROOF LAYOUT			
Drawn RS			
Date 14/11/16			
Scale/s AS SHOWN			
Consultant Drawing Number			
MD1083-111 Rev 0A			
DOPW Drawing Number			
WMS/WCS NO 058833			
Stamped By Plan Approval Committee			



GROUND FLOOR PLAN
SCALE 1:50



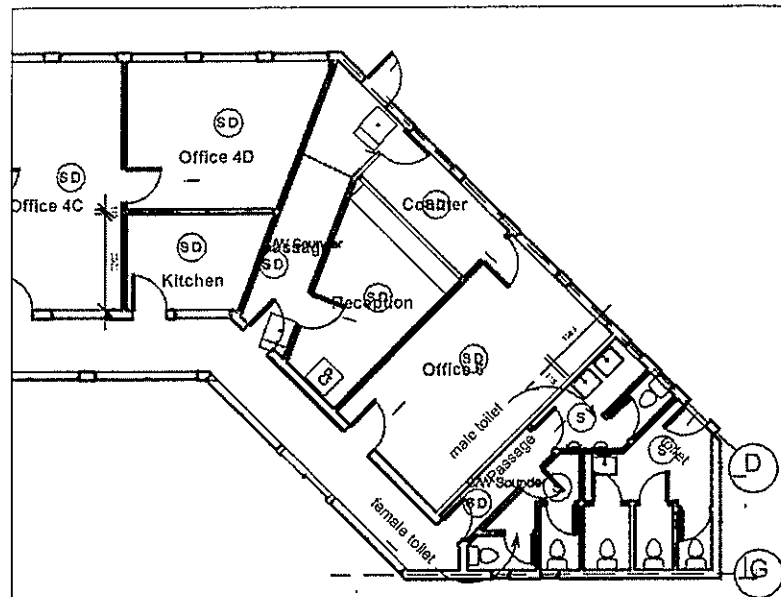
GROUND FLOOR PLAN
SCALE 1:50



SECTION C-C
SCALE 1:50

FOR INFORMATION

No.	Description	Date	By
Rev 0A	Preliminary - Issued For DRC	14/11/2016	FK
CLIENT DEPARTMENT SIGNATURES: FACILITY STAMP: FACILITY MANAGER INFRASTRUCTURE MANAGER GENERAL MANAGER Checked by Professional Consultant Name F. KAMBA Signature F. Kamba Professional: Royal HaskoningDHV Enhancing Society Together Client: public works Department: Public Works PROVINCE OF KWAZULU-NATAL SOUTHERN REGION Project: DEPARTMENT OF TRANSPORT REPAIRS TO EXECUTIVE BLOCK, BLOCK B ROOF AND BLOCK C VERANDAH ENCLOSURES AND ROOF Drawing Description: SECURITY OFFICE LAYOUT Drawn RS Scale/s AS SHOWN Consultant Drawing Number MD1083-112 Rev 0A DOPW Drawing Number WIMS/WCS NO 056833 Stamped By Plan Approval Committee			
Date 14.11.16			

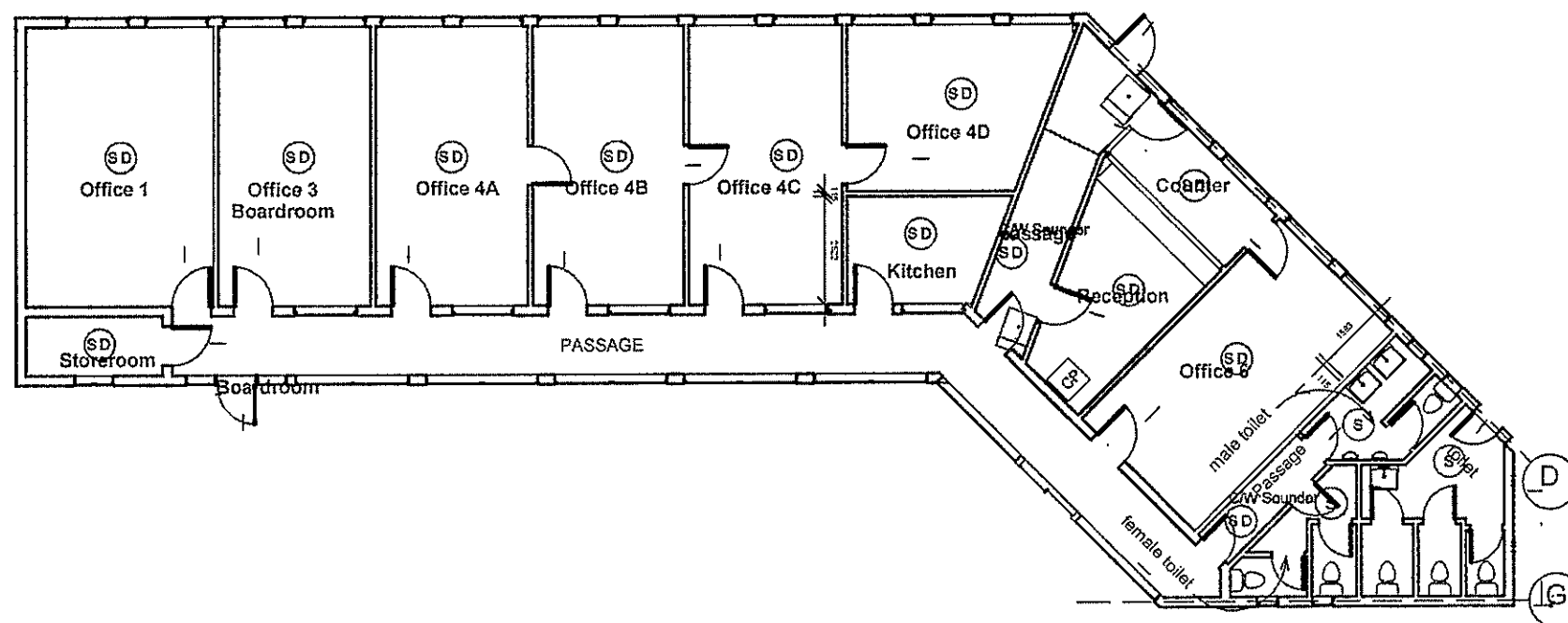


NOTES

1. FIRE ALARM CONDUITS ARE LABELLED "FAY"
2. FIRE ALARM CONDUITS SHALL BE GALVANIZED STEEL 25mm UNLESS OTHERWISE STATED.
3. UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUND CONDUIT BOXES (R30) (200mm DIA) (R30)
- 75 X 75 BOXES SHALL BE STANDARD NOTCH SWITCH BOXES USED FOR BREAK GLASS UNIT (BGL) BOXES
- 100 X 100 BOXES SHALL BE CONVENTIONAL STANDARD ADAPTABLE BOXES
4. LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 100mm AFFL AND 15mm FROM END OF DOOR SWING.
5. FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR. INSTALLATION BY OTHERS WITH A IGA SUPPLY IN DISTRIBUTION BOARD
6. 150mm AFFL FLUSH MOUNTED 300 X 300mm DRAWN TRAY, ALLOW FOR 4 X 25mm CONDUITS TO CARRY VOO BY ELECTRICAL CONTRACTOR

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

MULTI FIRE DETECTOR	(SD)
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	(H)
RELAY UNIT	(R)
BOUNDER	(B)
BREAK GLASS UNIT (1000 AFFL)	(X)
ALARM BELL	(A)
LINE ISOLATOR	(I)
INTERFACE UNIT	(IF)
STROBE WARNING LIGHT	(S)
CONTROL PANEL	(CP)
GAS CONTROL PANEL	(GP)



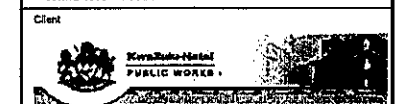
GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.
2. ANY DEVIATION FROM THIS LAYOUT IS NOT ACCEPTABLE WITHOUT PRIOR APPROVAL FROM THE ENGINEERS.
3. SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEER'S APPROVAL PRIOR TO ORDERING.
4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.

REV	DESCRIPTION	DATE
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PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosure of Ground and 3rd floor Verandahs at Block C

WMS No.- 059789



MECHANICAL ENGINEERS

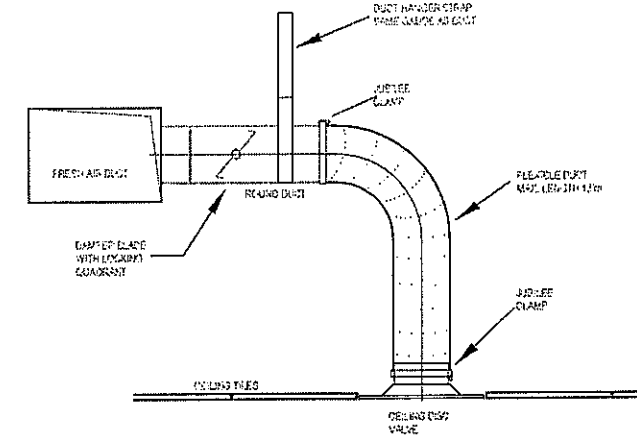


DRAWING TITLE
SMOKE DETECTOR LAYOUT
BLOCK B

SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

DRAWING No.
DOT-FSD-190-01

Revision
1



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S

- | | | |
|-----|---------------------|-----------|
| 1 | PRELIMINARY DRAWING | OCT. 2021 |
| REV | DESCRIPTION | DATE |

Client

 KwaZulu-Natal
PUBLIC WORKS



MECHANICAL ENGINEERS



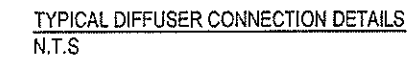
DRAWING TITLE

FRESH AIR LAYOUT

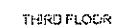
BLOCK C 2ND FLOOR

SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

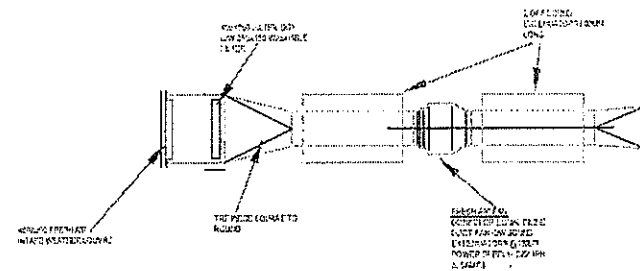
DRAWING No. DOT-FRA-190-002



1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEER'S DRAWINGS.
2. ANY DEVIATION FROM THIS LAYOUT IS NOT ACCEPTABLE WITHOUT PRIOR APPROVAL FROM THE ENGINEERS.
3. SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEER'S APPROVAL PRIOR TO ORDERING.
4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.



DRAWING No.	Revision
DOT-FRA-190-003	1



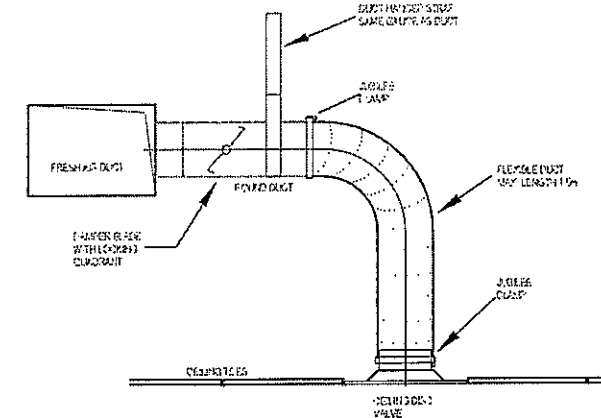
DETAIL 'A' TYPICAL FRESH AIR FAN DETAILS
N.T.S



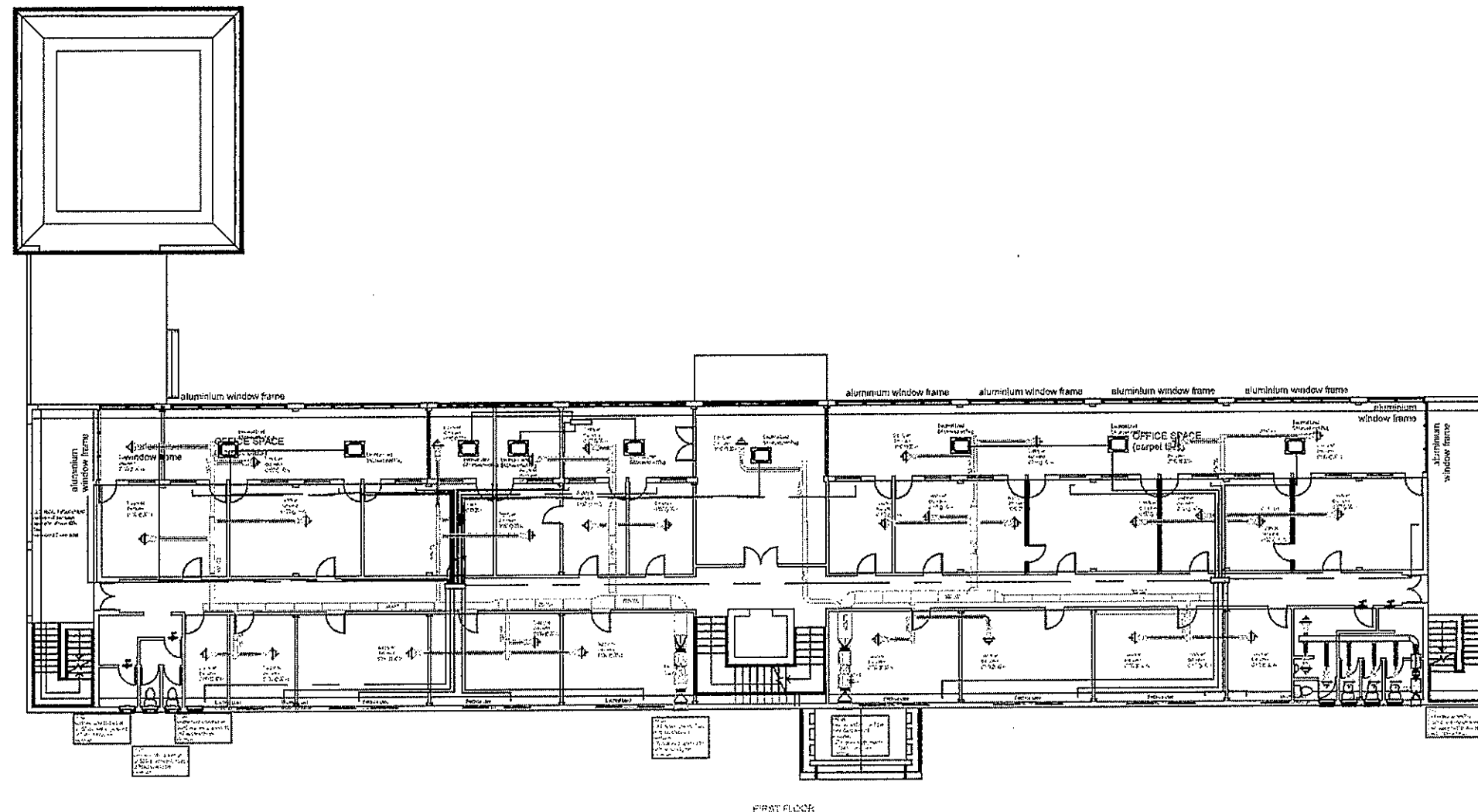
600x600 AIRCONDINER
CASSETS



36 HORSEPOWER VR UNIT



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S

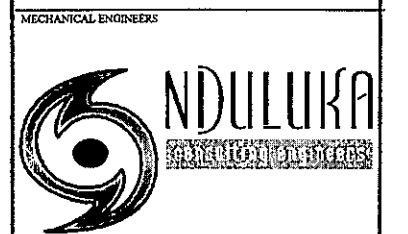
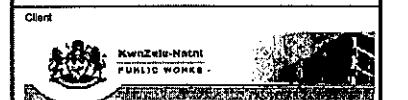


GENERAL NOTES

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5. SANS REGULATIONS MUST APPLY AND THE STANDARD PREVAIL OVER THE INSTRUCTION GIVEN ABOVE.

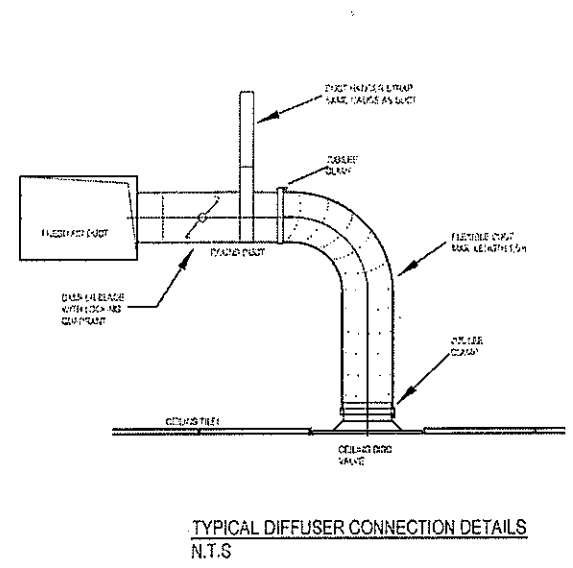
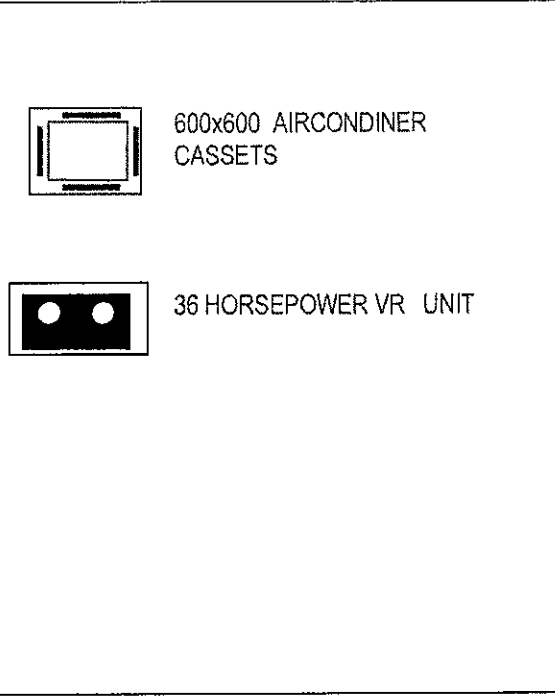
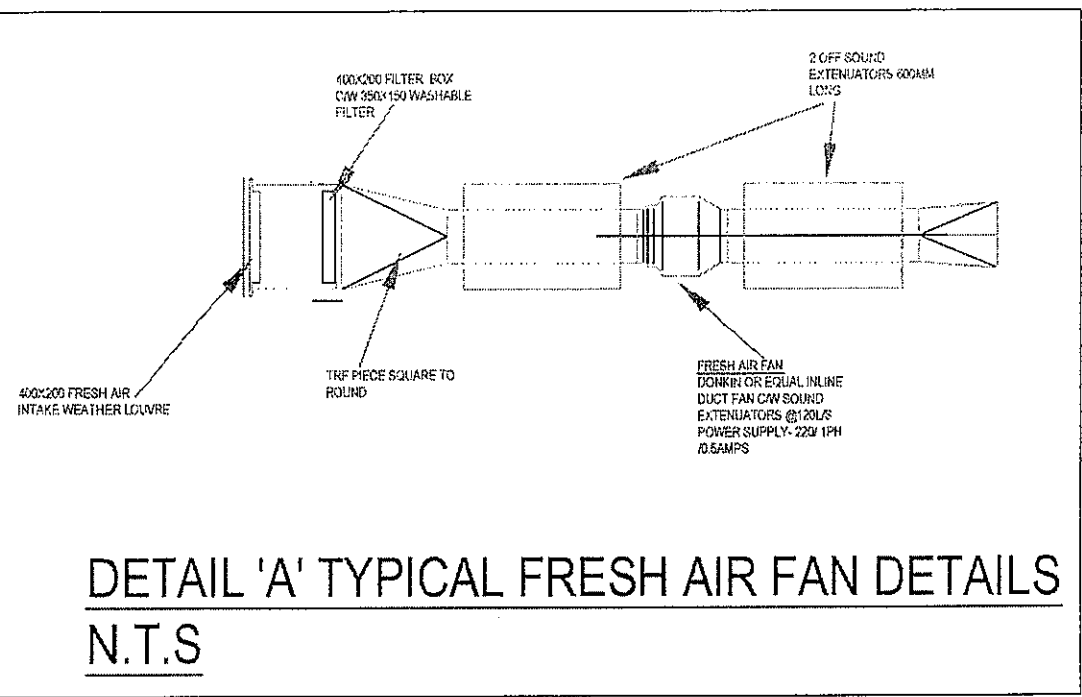
REV	DESCRIPTION	DATE
1	PRELIMINARY DRAWING	OCT. 2021

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of
Ground and 3rd floor Verandahs at Block C
WIMS No.- 058788



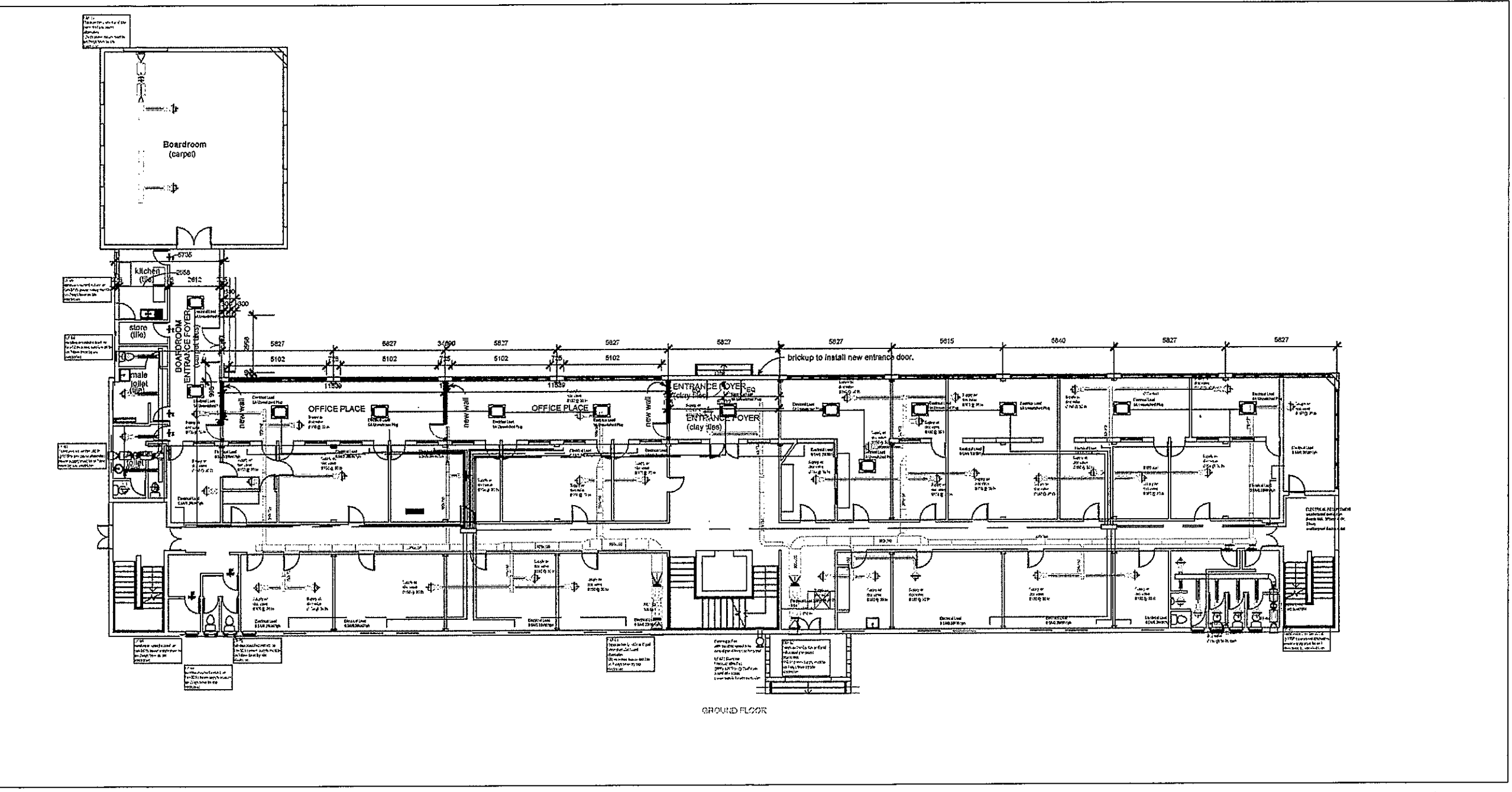
DRAWING TITLE	
FRESH AIR LAYOUT BLOCK C 1ST FLOOR	
SCALE	DATE
1:100	07 Oct. 2021
DESIGNED	CHECKED
C.N	B.B

DRAWING No. DOT-FRA-190-001 Revision 1

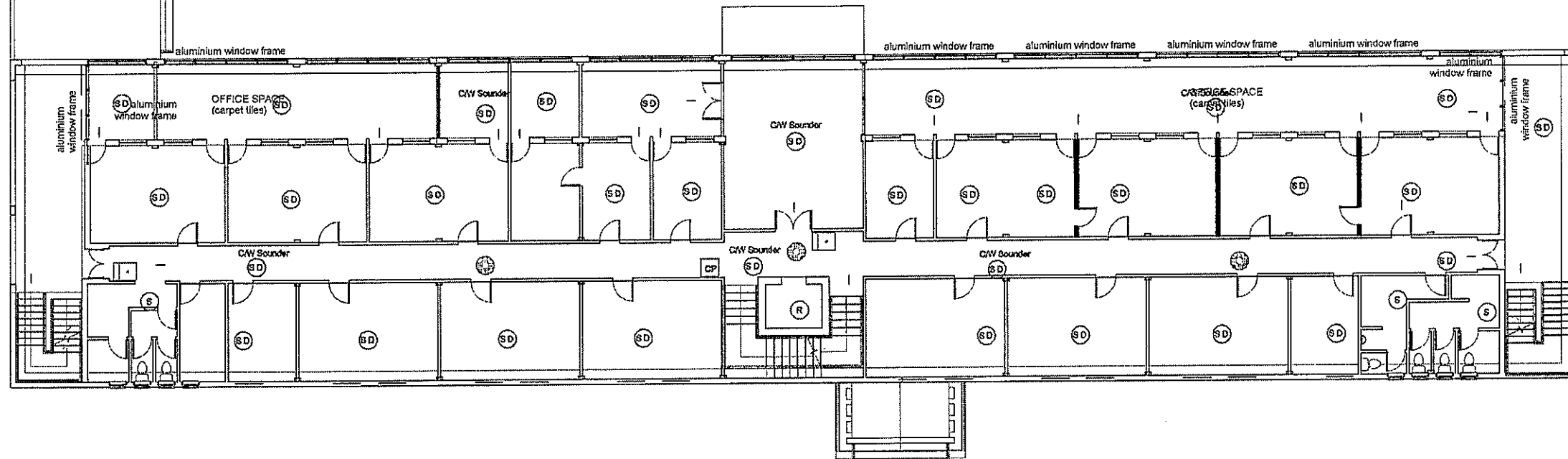
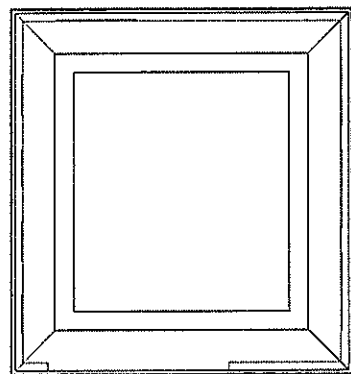
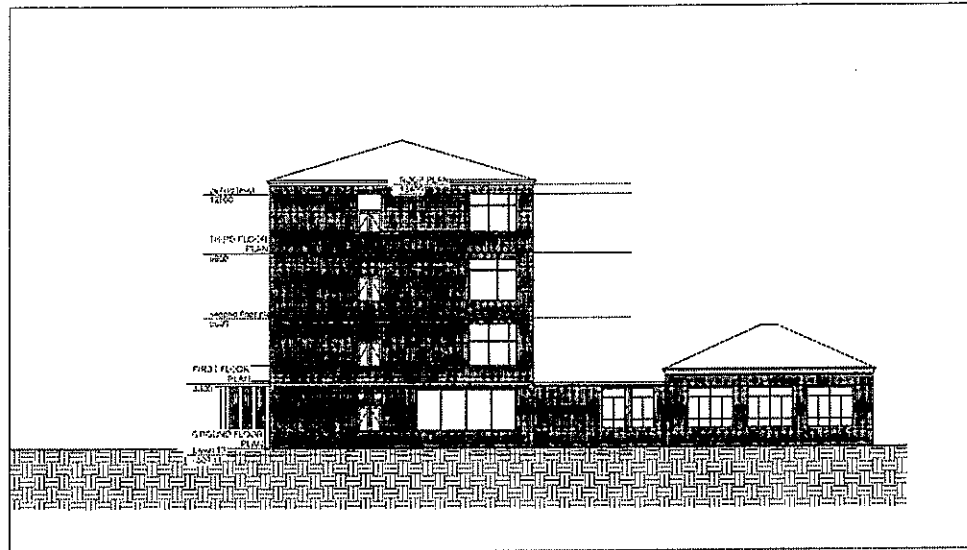


GENERAL NOTES

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3. SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEER'S APPROVAL PRIOR TO ORDERING.
4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PREVAIL OVER THE INSTRUCTION GIVEN ABOVE.



1	PRELIMINARY DRAWING	OCT. 2021
REV	DESCRIPTION	DATE
PROJECT Department Of Transport-Vulindlela Head Office upgrade Repair to Executive block and B Block roof and Enclosing of Ground and 3rd floor Verandah at Block C WMS No.- 050788		
Client 		
MECHANICAL ENGINEERS 		
DRAWING TITLE FRESH AIR LAYOUT BLOCK C GROUND FLOOR		
SCALE	1:100	DATE 07 Oct. 2021
DESIGNED	C.N	CHECKED B.B
DRAWING No. DOT-FRA-190-000		Revision 1



NOTES:

1. FIRE ALARM CONDUITS ARE LABELLED: "FA"
2. FIRE ALARM CONDUITS SHALL BE GALVANISED STEEL 25mm UNLESS OTHERWISE STATED.
3. UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUND CONDUIT BOXES (50.8mm DIA TO SABS 100)
75 X 75 BOXES SHALL BE STANDARD BRITISH SWITCH BOXES USED FOR BREAK GLASS UNIT BACKBOXES
150 X 150 BOXES SHALL BE 50mm DEEP STANDARD ADAPTABLE BOXES
4. LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 300mm AFFL AND 150mm FROM EDC OF DOOR SWING
5. FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR, INSTALLATION BY OTHERS WITH A 10A SUPPLY IN DISTRIBUTION BOARD
6. 150mm AFFL FLUSH MOUNTED 300 X 300mm DRAW TRAY ALLOW FOR 4 X 25mm CONDUITS TO BE Laid VOID BY ELECTRICAL CONTRACTOR

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

SMOKE FIRE DETECTOR	SD
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	H
RELAY UNIT	R
SOUNDER	S
BREAK GLASS UNIT (1000 AFFL)	□
ALARM SIREN	⊙
LINE ISOLATOR	⊖
INTERFACE UNIT	⊕
STROBE WARNING LIGHT	⊗
CONTROL PANEL	CP
GAS CONTROL PANEL	GP

GENERAL NOTES

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4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.

1	PRELIMINARY DRAWING	OCT. 2021
REV	DESCRIPTION	DATE

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd floor Verandahs at Block C

WIMS No.- 009789

Client

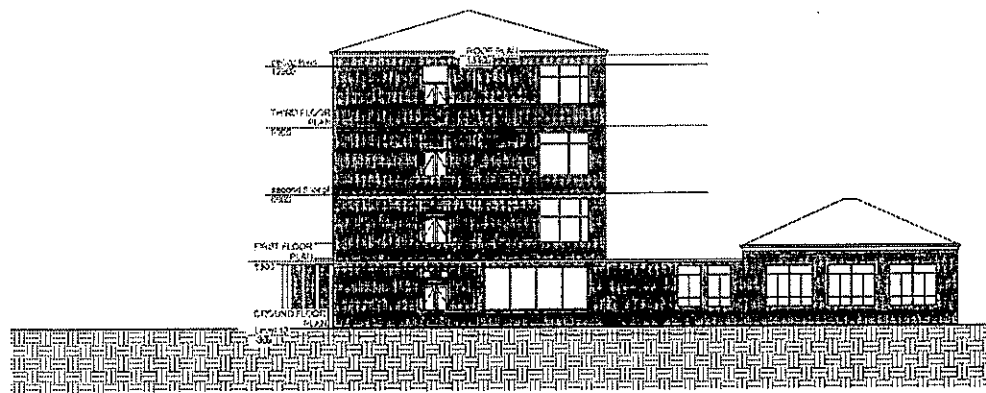
MECHANICAL ENGINEERS

DRAWING TITLE
**SMOKE DETECTOR LAYOUT
BLOCK C, 1ST FLOOR**

SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

DRAWING No.
DOT-FSD-190-001

Revision
1



NOTES:

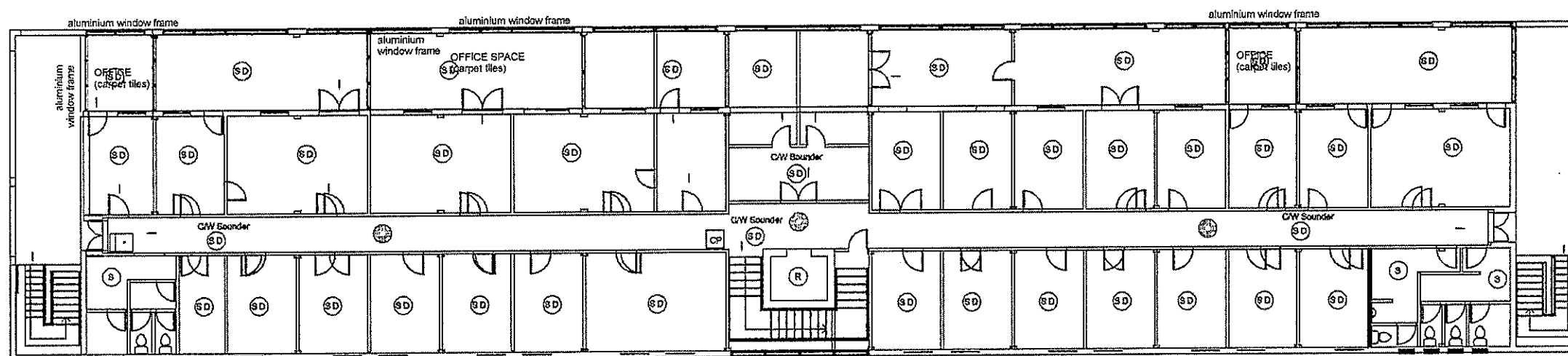
1. FIRE ALARM CONDUITS ARE LABELED: "FA"
2. FIRE ALARM CONDUITS SHALL BE GALVANISED STEEL, 25mm UNLESS OTHERWISE STATED.
3. UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUTED CONDUIT BOXES (50,3mm DIA TO SAGS 150).
- 75 X 75 BOXES SHALL BE STANDARD BRITISH SWITCH BOXES USED FOR BREAK GLASS UNIT BACKBOXES.
- 150 X 150 BOXES SHALL BE 50mm DEEP STANDARD ADAPTABLE BOXES.
4. LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 300mm AFFL AND 150mm FROM END OF DOOR SWING.
5. FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR. INSTALLATION BY OTHERS WITH A 10A SUPPLY IN DISTRIBUTION BOARD.
6. 150mm AFFL FLUSH MOUNTED 300 X 300mm DRAW TRAY, ALLOW FOR 4 X 25mm CONDUITS TO CEILING VOID BY ELECTRICAL CONTRACTOR.

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

SMOKE FIRE DETECTOR	SD
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	H
RELAY UNIT	R
SOUNDER	S
BREAK GLASS UNIT (1000 AFFL)	□
ALARM SIREN	⊙
LINE ISOLATOR	⊕
INTERFACE UNIT	I
STROBE WARNING LIGHT	⊗
CONTROL PANEL	CP
GAS CONTROL PANEL	GP

GENERAL NOTES

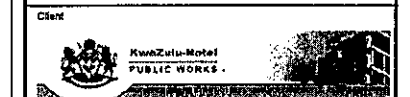
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4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.



REV	DESCRIPTION	DATE
1	PRELIMINARY DRAWING	OCT. 2021

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of
Ground and 3rd floor Verandahs at Block C

WIMS No.: 050789

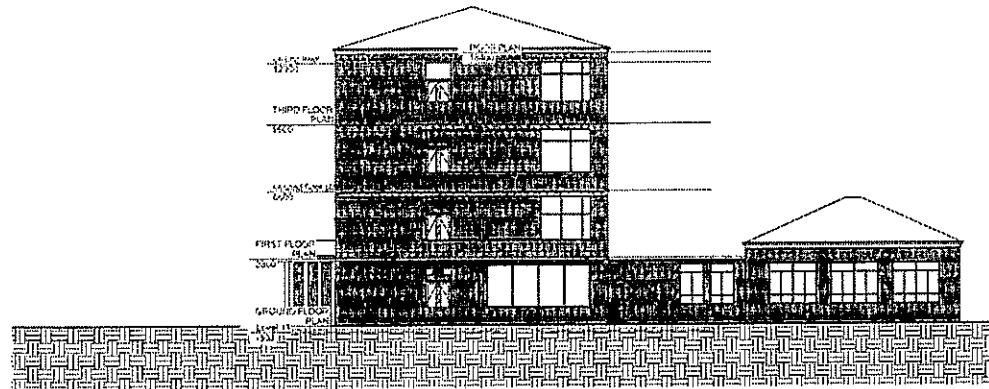


MECHANICAL ENGINEERS



DRAWING TITLE	
SMOKE DETECTOR LAYOUT BLOCK C, 2ND FLOOR	
SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

DRAWING No. DOT-FSD-190-002	Revision 1
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NOTES:

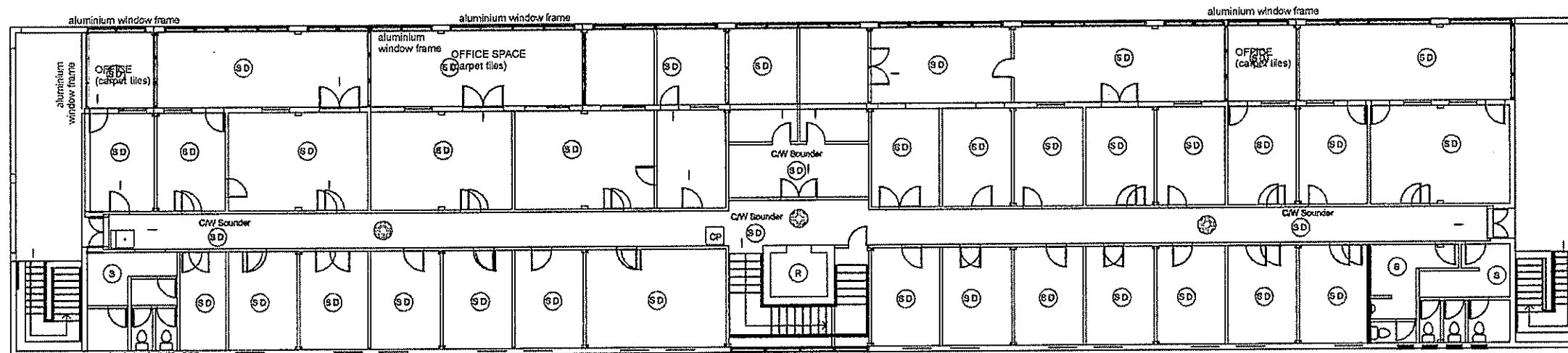
1. FIRE ALARM CONDUITS ARE LABELLED 'FAC'.
2. FIRE ALARM CONDUITS SHALL BE GALVANIZED STEEL, 25mm UNLESS OTHERWISE STATED.
3. UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUND CONDUIT BOXES (62.5mm DIA TO SABS 132).
75 X 75 BOXES SHALL BE STANDARD BRITISH SWITCH BOXES, USED FOR BREAK GLASS UNIT BACKBOXES.
150 X 150 BOXES SHALL BE 50mm DEEP STANDARD ADAPTABLE BOXES.
4. LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 300mm AFFL AND 150mm FROM END OF DOOR SWING.
5. FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR. INSTALLATION BY OTHERS WITH A ICA SUPPLY IN DISTRIBUTION BOARD.
6. 150mm AFFL FLUSH MOUNTED 300 X 300mm DRAW TRAY, ALLOW FOR 4 X 25mm CONDUITS TO CEILING VOID BY ELECTRICAL CONTRACTOR.

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

SMOKE FIRE DETECTOR	SD
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	H
RELAY UNIT	R
SOUNDER	S
BREAK GLASS UNIT (1000 AFFL)	□
ALARM SIREN	⊗
LINE ISOLATOR	⊙
INTERFACE UNIT	⊕
STROBE WARNING LIGHT	⊛
CONTROL PANEL	CP
GAS CONTROL PANEL	GP

GENERAL NOTES

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2. ANY DEVIATION FROM THIS LAYOUT IS NOT ACCEPTABLE WITHOUT PRIOR APPROVAL FROM THE ENGINEERS.
3. SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEERS APPROVAL PRIOR TO ORDERING.
4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.



1	PRELIMINARY DRAWING	OCT. 2021
REV	DESCRIPTION	DATE
PROJECT		
Department Of Transport-Vulindlela Head Office upgrade Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd Floor Verandahs at Block C		
WIMS No.- 050789		
Client		
MECHANICAL ENGINEERS		
DRAWING TITLE		
SMOKE DETECTOR LAYOUT BLOCK C, 3rd FLOOR		
SCALE	DATE	
1:100	07 Oct. 2021	
DESIGNED	CHECKED	
C.N	B.B	
DRAWING No.		Revision
DOT-FSD-190-003		1

GENERAL NOTES

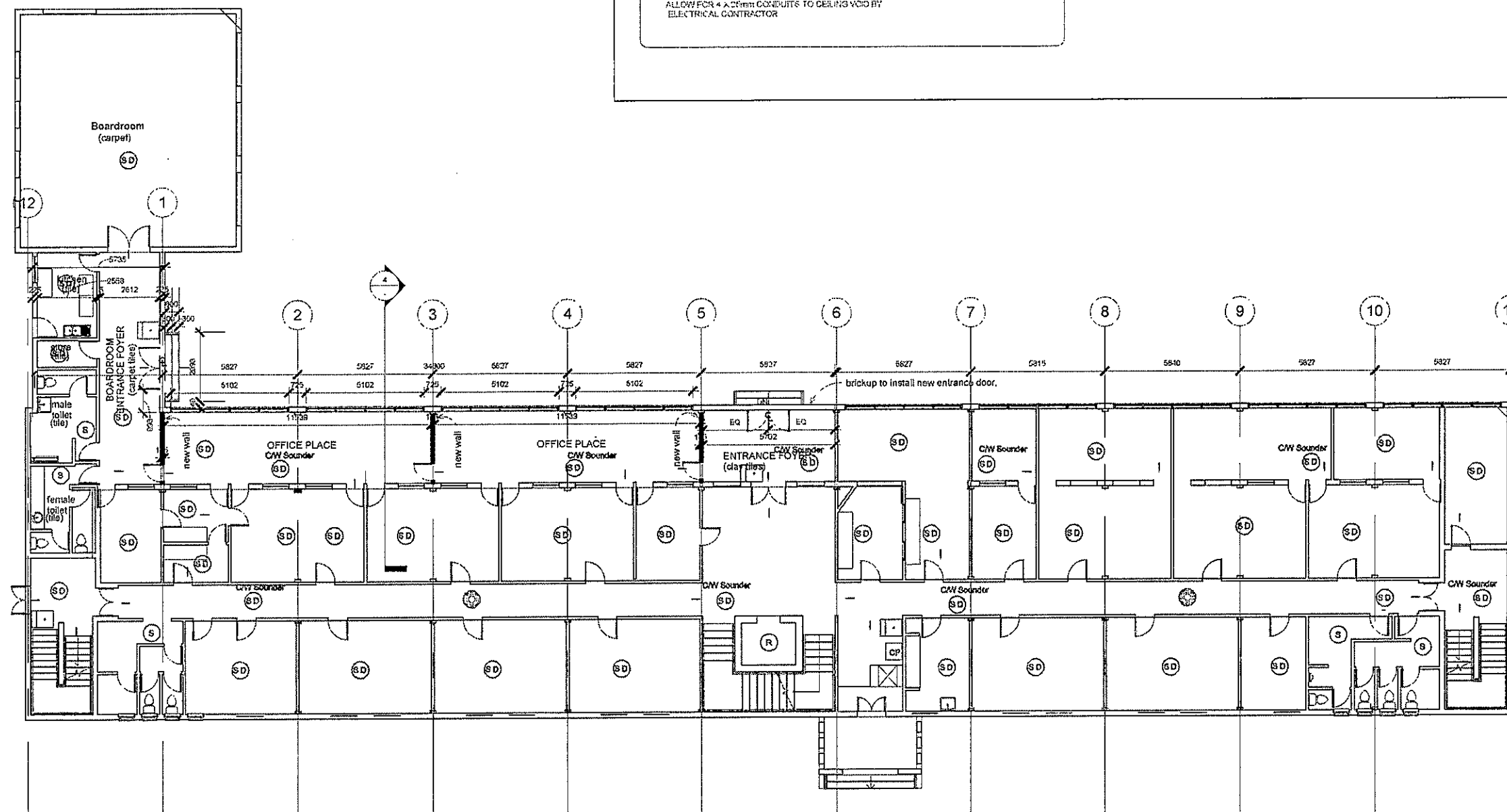
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS.
- ANY DEVIATION FROM THIS LAYOUT IS NOT ACCEPTABLE WITHOUT PRIOR APPROVAL FROM THE ENGINEERS.
- SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEERS APPROVAL PRIOR TO ORDERING.
- THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
- SANS REGULATIONS MUST APPLY AND THE STANDARD PREVAIL OVER THE INSTRUCTION GIVEN ABOVE.

NOTES:

- FIRE ALARM CONDUITS ARE LABELLED "FA".
- FIRE ALARM CONDUITS SHALL BE GALVANISED STEEL, 25mm UNLESS OTHERWISE STATED.
- UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUND CONDUIT BOXES (60.3mm DIA TO SABS 102).
- 75 X 75 BOXES SHALL BE STANDARD BRITISH SWITCH BOXES, USED FOR BREAK GLASS UNIT BACKBOXES.
- 160 X 150 BOXES SHALL BE 50mm DEEP STANDARD ADAPTABLE BOXES.
- LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 300mm AFFL AND 150mm FROM END OF DOOR SWINGS.
- FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR. INSTALLATION BY OTHERS WITH A 10A SUPPLY IN DISTRIBUTION BOARD.
- 1500mm AFFL FLUSH MOUNTED 300 X 300mm DRAW TRAY ALLOW FOR 4 x 25mm CONDUITS TO CEILING VOID BY ELECTRICAL CONTRACTOR.

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

SMOKE FIRE DETECTOR	SD
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	H
RELAY UNIT	R
SOUNDER	S
BREAK GLASS UNIT (1000 AFFL)	□
ALARM SIREN	⊗
LINE ISOLATOR	⊕
INTERFACE UNIT	I
STROBE WARNING LIGHT	⊙
CONTROL PANEL	CP
GAS CONTROL PANEL	GP



REV	DESCRIPTION	DATE
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1 PRELIMINARY DRAWING OCT. 2021

PROJECT Department Of Transport-Vulindlela Head Office upgrade

Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd floor Verandahs at Block C

WMS No. 059789

Client

Kwame Ninsin PUBLIC WORKS

MECHANICAL ENGINEERS

NDULUKA

SMOKE DETECTOR LAYOUT

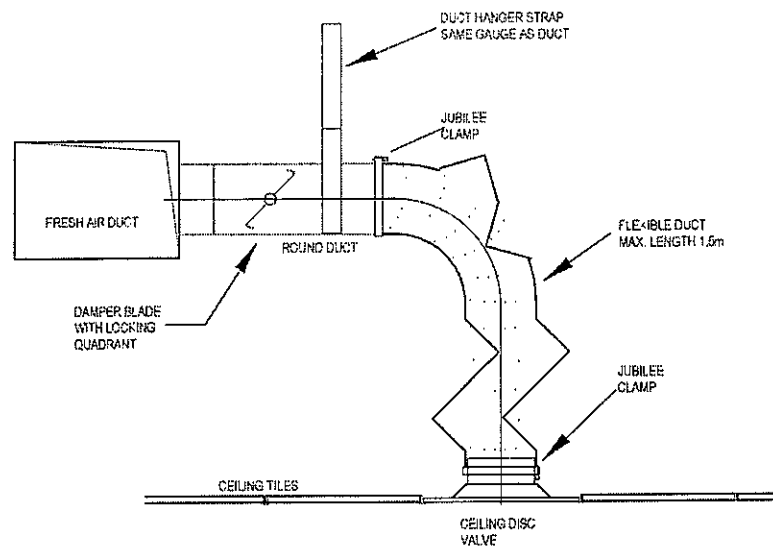
BLOCK C, G-FLOOR

SCALE 1:100 DATE 07 OCT. 2021

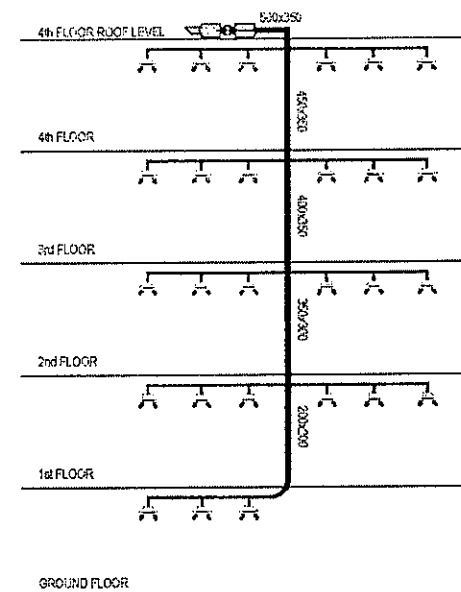
DESIGNED C.N. CHECKED B.B.

DRAWING No. DOT-FSD-190-000

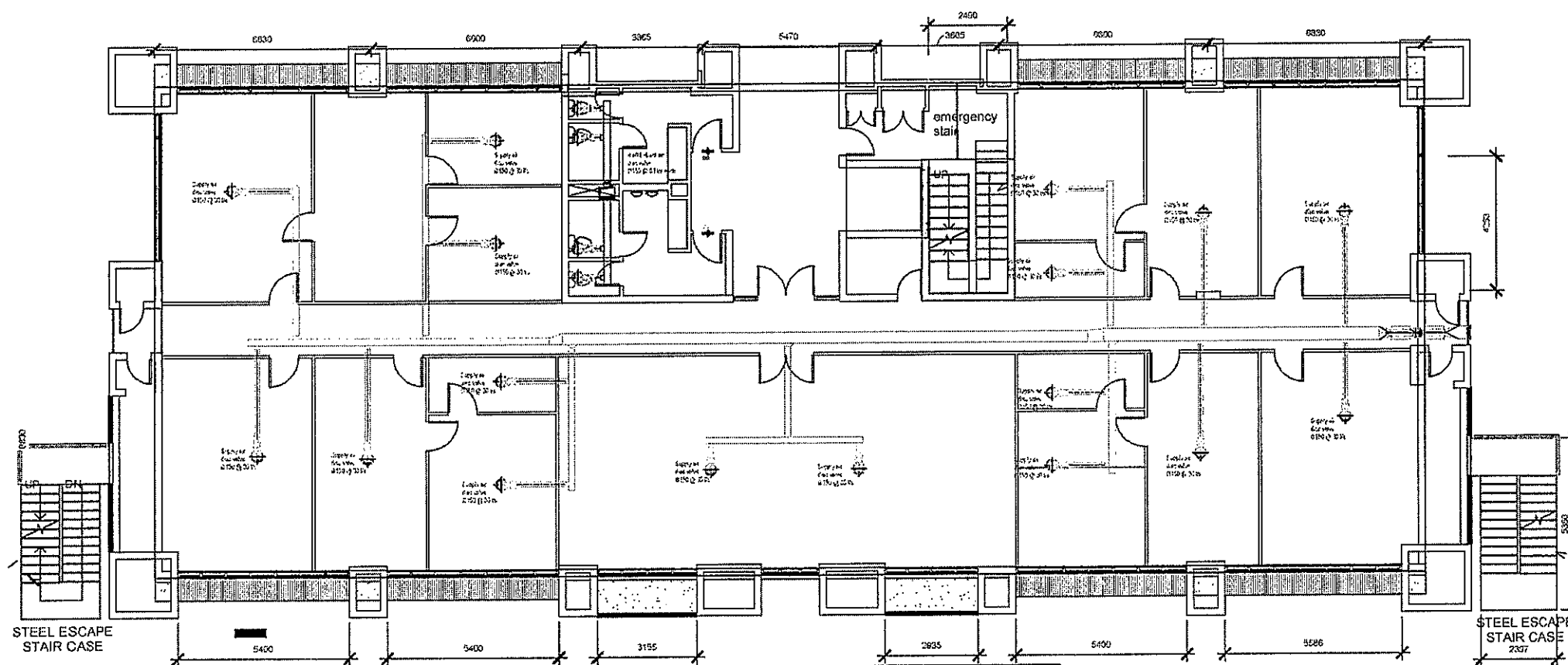
Revision 1



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S



TOILET EXTRACT SCHEMATICS - EXECUTIVE BLOCK



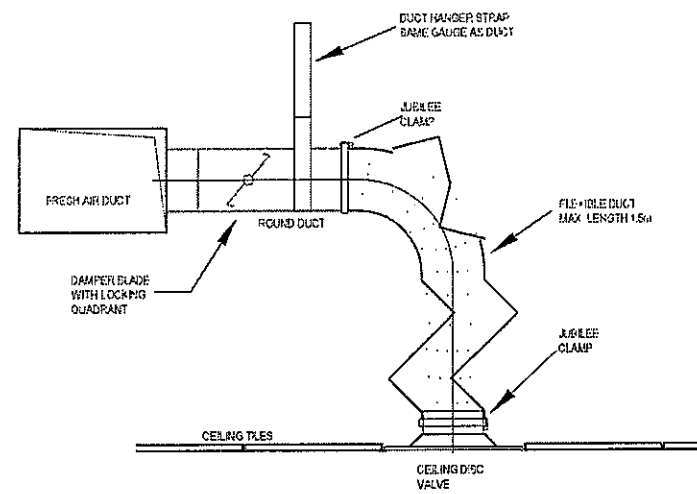
EXECUTIVE BLOCK - FIRST FLOOR PLAN

ALL DAMPERS MUST REMAIN CLOSED AUTOMATICALLY
HVAC MUST BE CONNECTED VIA THE TIMED ELECTRICAL POWER

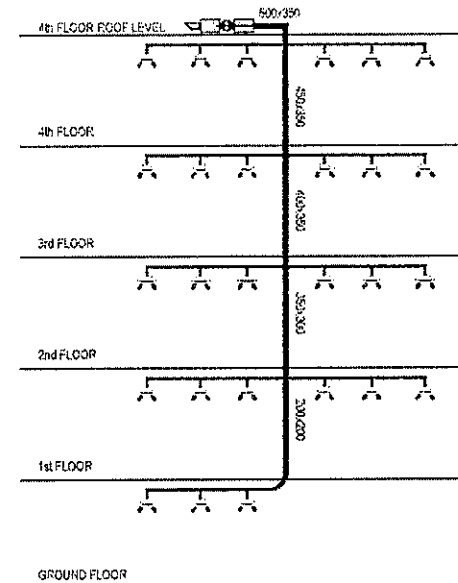
GENERAL NOTES

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3. SAMPLES AND TECHNICAL LITERATURE FOR MECHANICAL EQUIPMENT TO BE SUBMITTED FOR ENGINEER'S APPROVAL PRIOR TO ORDERING.
4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.

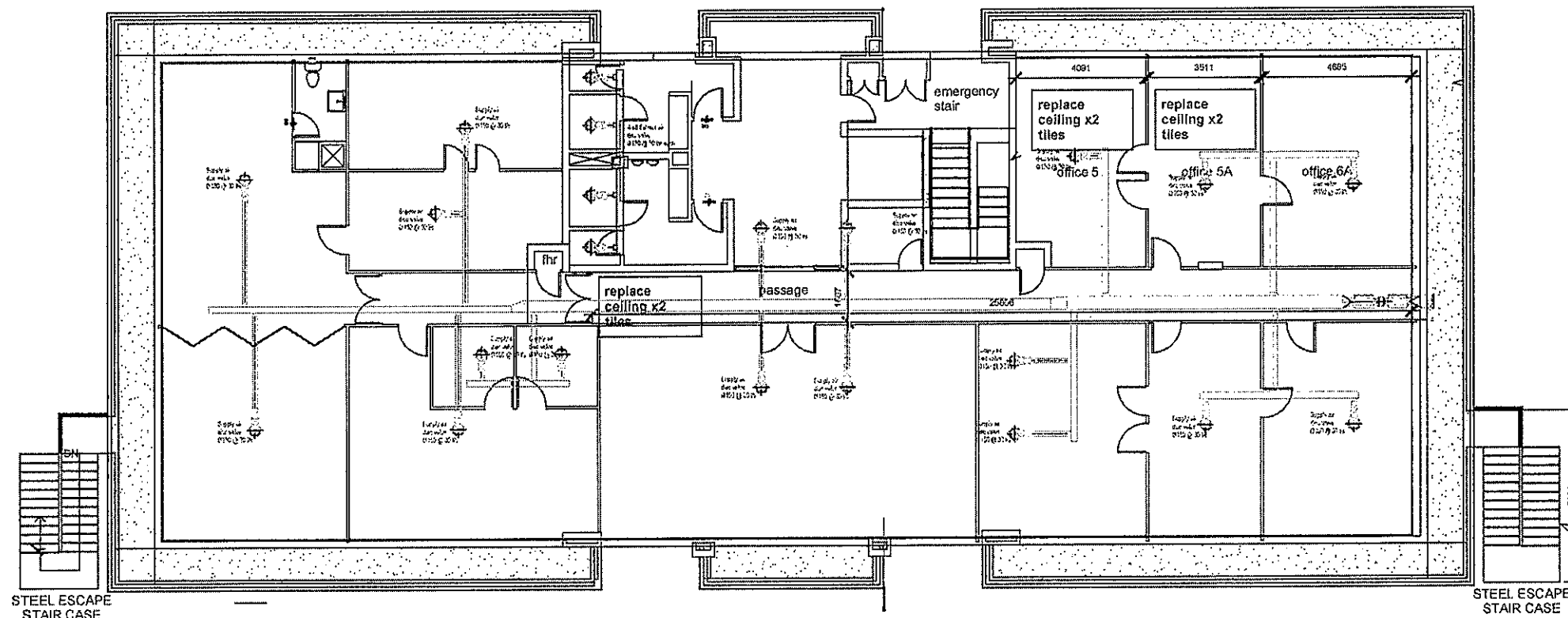
I PRELIMINARY DRAWING		OCT. 2021
REV	DESCRIPTION	DATE
PROJECT		
Department Of Transport-Vulindlela Head Office upgrade		
Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd Floor Verandah at Block C		
WIMS No.- 058789		
Client		
KwaZulu-Natal PUBLIC WORKS		
MECHANICAL ENGINEERS		
NDULUKA ENGINEERING		
DRAWING TITLE		
FRESH AIR LAYOUT EXECUTIVE BLOCK 1ST FLOOR		
SCALE	DATE	
1:100	07 Oct. 2021	
DESIGNED	CHECKED	
C.N	B.S	
DRAWING No.		Revision
DOT-FRA-190-01		1



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S



TOILET EXTRACT SCHEMATICS - EXECUTIVE BLOCK



EXECUTIVE BLOCK - SECOND FLOOR PLAN

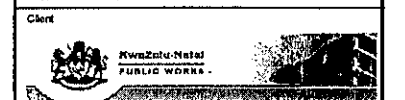
ALL DAMPERS MUST REMAIN CLOSED AUTOMATICALLY
HVAC MUST BE CONNECTED VIA THE TIMED ELECTRICAL POWER

GENERAL NOTES

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4. THE MAIN CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS INCLUDING LEVELS ON SITE.
5. SANS REGULATIONS MUST APPLY AND THE STANDARD PRESIDES OVER THE INSTRUCTION GIVEN ABOVE.

REV	DESCRIPTION	DATE
1	PRELIMINARY DRAWING	OCT. 2021

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd floor Verandah at Block C
WMS No.- 059780



MECHANICAL ENGINEERS

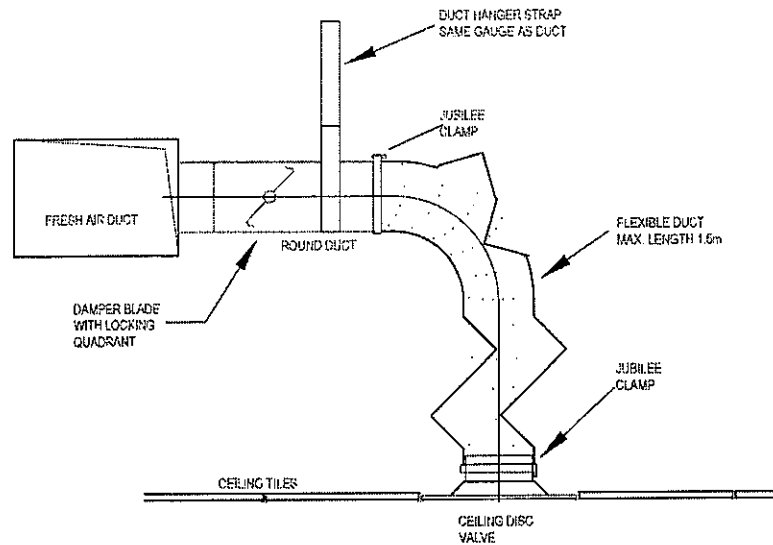


DRAWING TITLE
FRESH AIR LAYOUT
EXECUTIVE BLOCK 2ND FLOOR

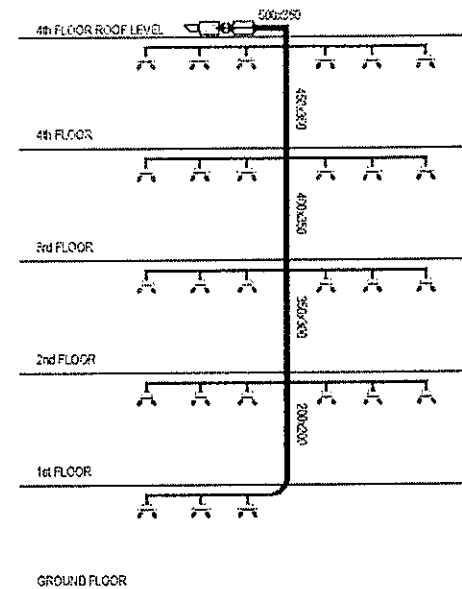
SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

DRAWING No.
DOT-FRA-190-02

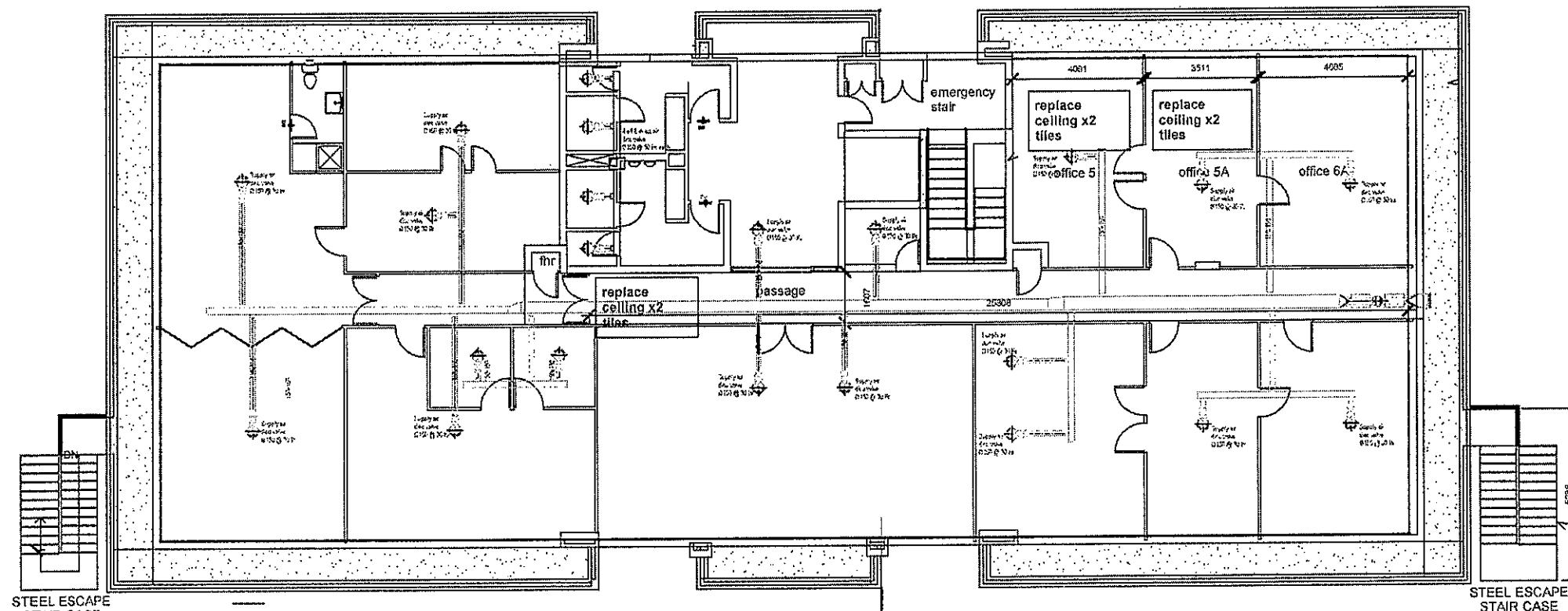
Revision
1



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S



TOILET EXTRACT SCHEMATICS - EXECUTIVE BLOCK



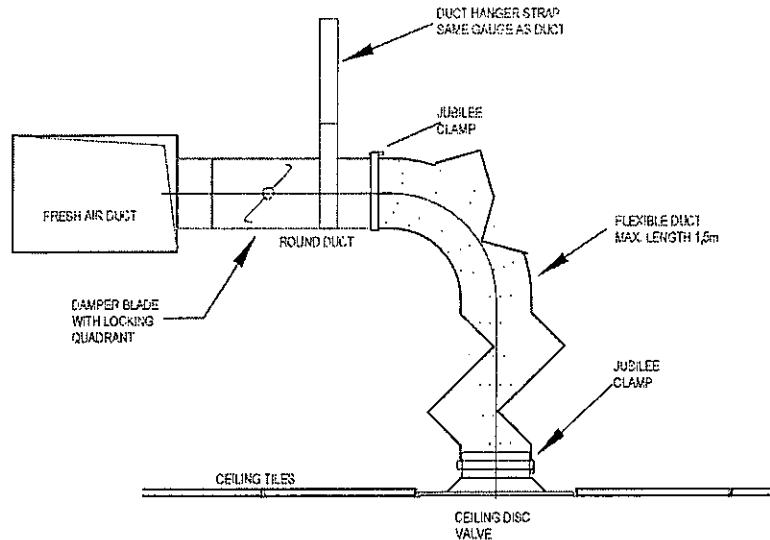
EXECUTIVE BLOCK - THIRD FLOOR PLAN

ALL DAMPERS MUST REMAIN CLOSED AUTOMATICALLY
HVAC MUST BE CONNECTED VIA THE TIMED ELECTRICAL POWER

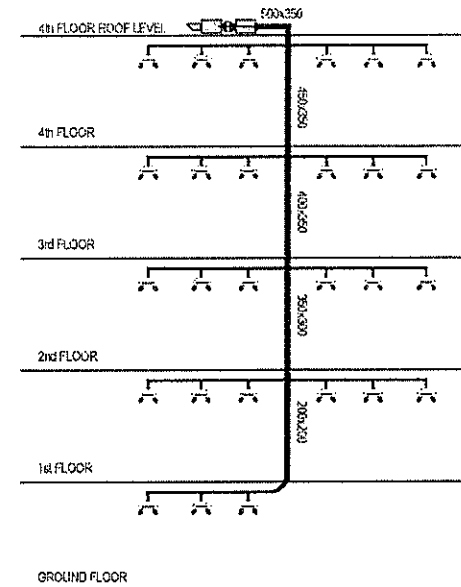
GENERAL NOTES

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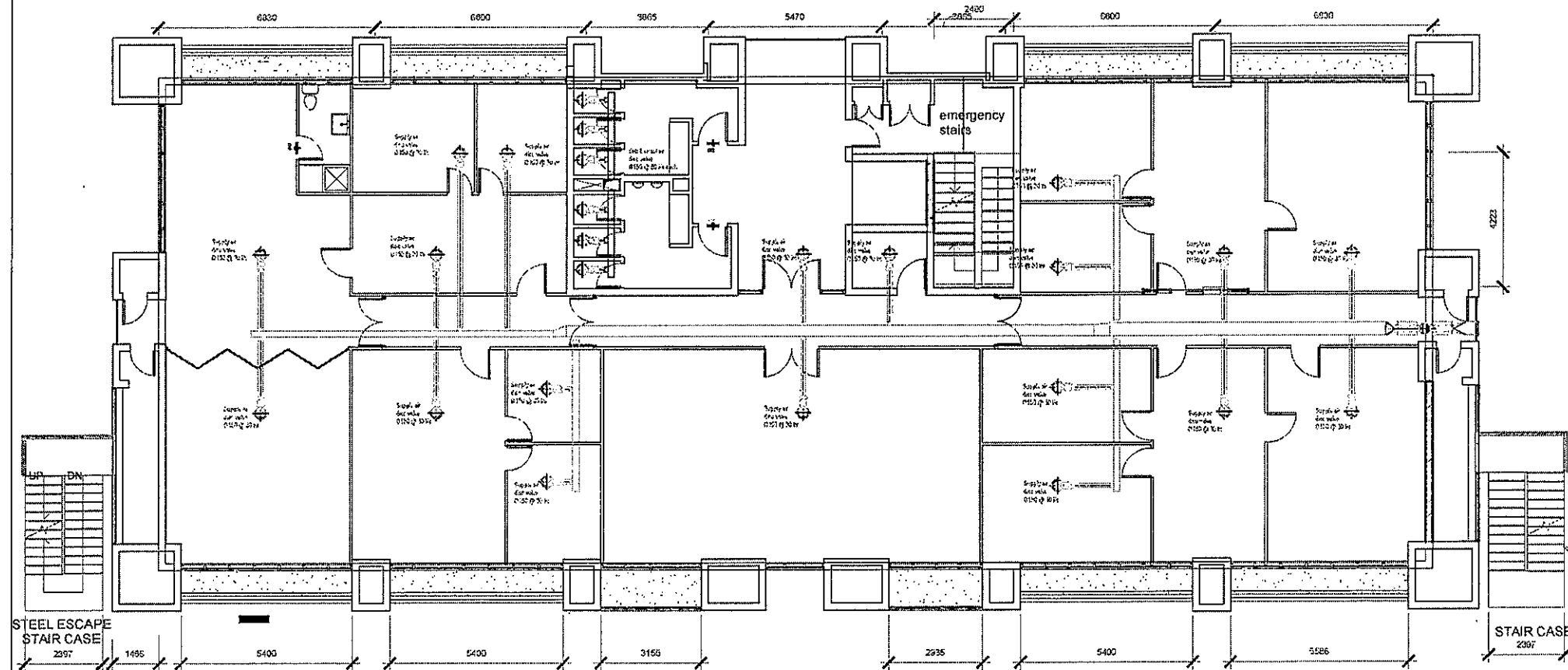
1	PRELIMINARY DRAWING	OCT. 2021
REV	DESCRIPTION	DATE
PROJECT		
Department Of Transport-Vulindlela Head Office upgrade		
Repairs to Executive block and B Block roof and Enclosing of Ground and 2nd floor Verandahs at Block C		
WMS No.-059788		
Client		
KwaZulu-Natal PUBLIC WORKS		
MECHANICAL ENGINEERS		
NDULUKA CONSULTANTS		
DRAWING TITLE		
FRESH AIR LAYOUT EXECUTIVE BLOCK 3RD FLOOR		
SCALE	DATE	
1:100	07 Oct 2021	
DESIGNED	CHECKED	
C.N	B.B	
DRAWING No. Revision		
DOT-FRA-190-03 1		



TYPICAL DIFFUSER CONNECTION DETAILS
N.T.S



TOILET EXTRACT SCHEMATICS - EXECUTIVE BLOCK



EXECUTIVE BLOCK - FOURTH FLOOR PLAN

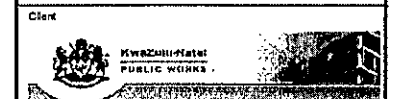
ALL DAMPERS MUST REMAIN CLOSED AUTOMATICALLY
HVAC MUST BE CONNECTED VIA THE TIMED ELECTRICAL POWER

GENERAL NOTES

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REV	DESCRIPTION	DATE
1	PRELIMINARY DRAWING	OCT. 2021

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of Ground and 3rd Floor Verandahs at Block C
WIMS No.- 059788



MECHANICAL ENGINEERS



DRAWING TITLE
FRESH AIR LAYOUT
EXECUTIVE BLOCK 4TH FLOOR

SCALE 1:100	DATE 07 Oct 2021
DESIGNED C.N	CHECKED B.B

DRAWING No.
DOT-FRA-190-04

Revision
1

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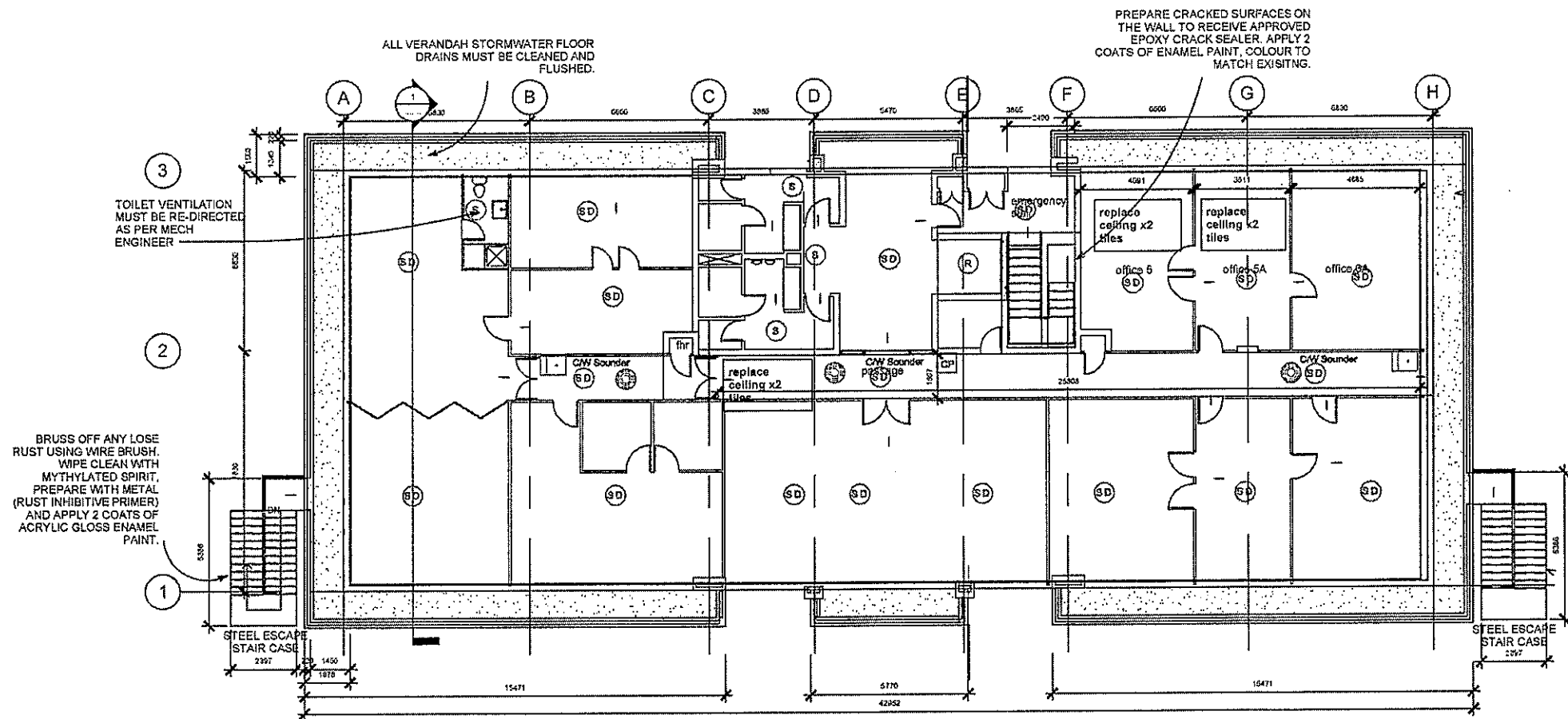
OMATICALLY IN CASE OF FIRE

NOTES:

1. FIRE ALARM CONDUITS ARE LABELED "FA"
2. FIRE ALARM CONDUITS SHALL BE GALVANIZED STEEL, 25mm* UNLESS OTHERWISE STATED
3. UNLESS OTHERWISE SHOWN, ALL FA OUTLET BOXES ARE STANDARD ROUND CONDUIT BOXES (60,3mm DIA TO SABS 102)
4. 75 X 75 BOXES SHALL BE STANDARD BRITISH SWITCH BOXES USED FOR BREAK GLASS UNIT BOXES 150 X 150 BOXES SHALL BE 50mm DEEP STANDARD ADAPTABLE BOXES
5. LOW-LEVEL MAGNETIC DOOR HOLD-BACK OUTLETS TO BE MOUNTED AT 200mm AFFL AND 150mm FROM END OF DOOR SWING
6. FIRE ALARM PANEL TRAY TO BE SUPPLIED BY FIRE ALARM CONTRACTOR. INSTALLATION BY OTHERS WITH A 10A SUPPLY IN DISTRIBUTION BOARD
7. 150mm AFFL FLUSH MOUNTED 300 X 300mm DRAW TRAY ALLOW FOR 4 X 25mm CONDUITS TO CEILING VOID BY ELECTRICAL CONTRACTOR

FIRE DETECTION AND ALARM EVACUATION SYMBOLS

SMOKE DETECTOR	SD
HEAT SENSITIVE (RATE OF TEMPERATURE RISE)	H
RELAY UNIT	R
SOUNDER	S
BREAK GLASS UNIT (1000 AFFL)	□
ALARM BIRCH	⊗
LINE ISOLATOR	⊖
INTERFACE UNIT	I
STROBE WARNING LIGHT	⊕
CONTROL PANEL	CP
GAS CONTROL PANEL	GP

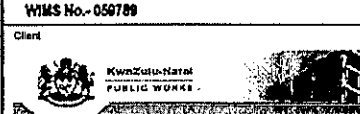


SCOPE OF WORK

REPLACE ALL FIRE DETECTORS SENSORS WITH NEW NEW FIRE DETECTOR SENSORS AT THE FORTH FLOOR
CHECK AND TEST ALL FIRE DOOR MAGNET ESPECIAL AT 3RD FLOOR. REPORT FAULTY WITH THE ENGINEER
UPGRADE FIRE CONTROL PANEL TO INCLUDE OTHER BLOCK
FIRE PANEL TO LINKED WITH FRESH AIR TO SWITCH OFF DAMPERS IN CASE OF FIRE
FIRE PANEL TO LINKED WITH STAIRCASE PRESSURIZED FAN CONTROL CIRCUIT SEND SIGNAL TO SWITCH ON FAN AUTOMATICALLY IN CASE OF FIRE

REV	DESCRIPTION	DATE
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PROJECT
Department Of Transport-Vullindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of
Ground and 3rd floor Verandah at Block C



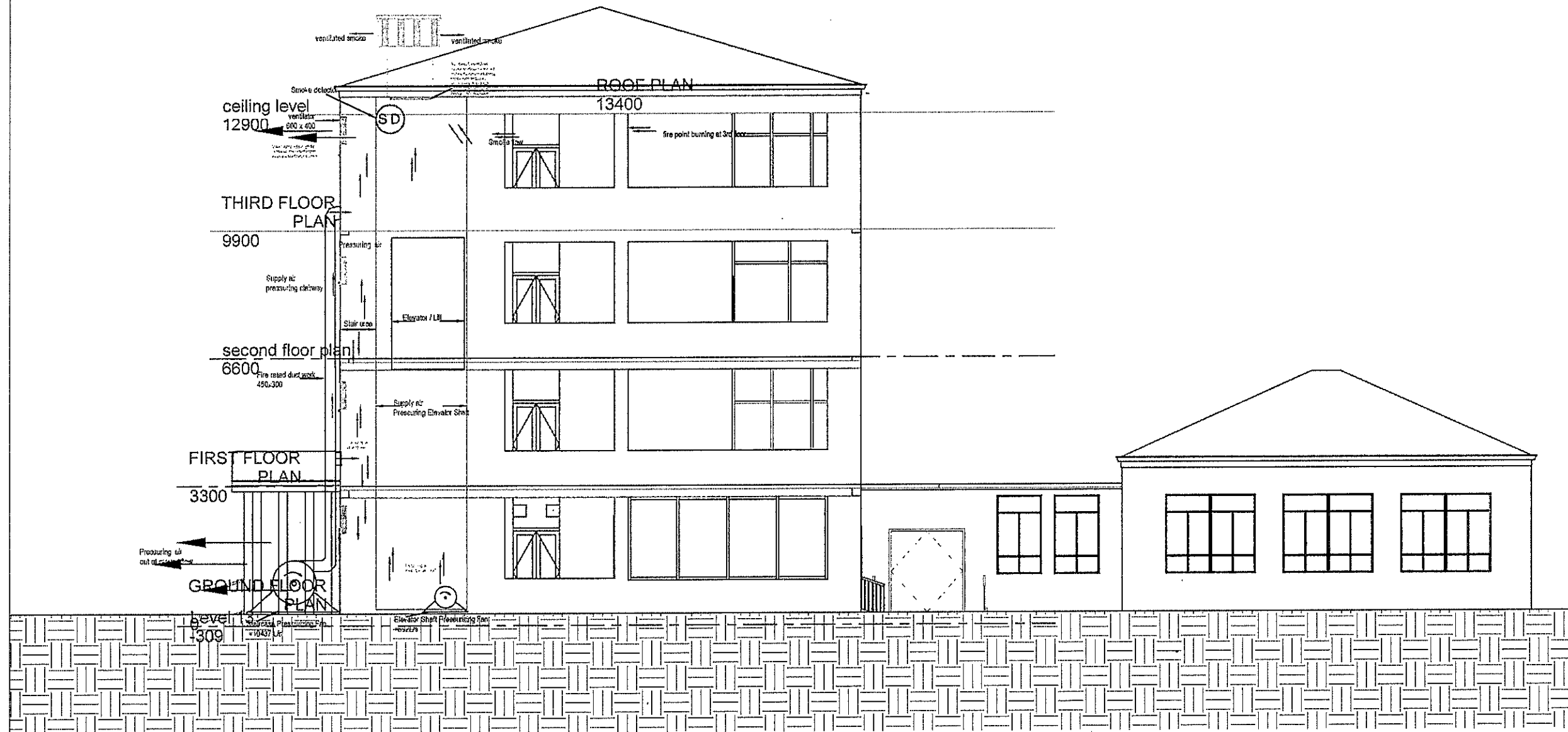
MECHANICAL ENGINEERS



DRAWING TITLE
SMOKE DETECTOR LAYOUT
EXECUTIVE BLOCK, 4TH FLOOR

SCALE	DATE
1:100	07 Oct. 2021
DESIGNED	CHECKED
C.N	B.B

DRAWING No. DOT-FEB-190-04
Revision 1



BLOCK C
STAIRWAY AND ELEVATOR PRESSURIZING SYSTEM
PLAN

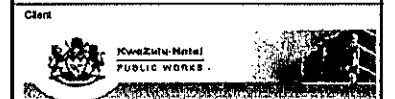
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0	PRELIMINARY DRAWING	OCT. 2021
REV	DESCRIPTION	DATE

PROJECT
Department Of Transport-Vulindlela Head Office upgrade
Repairs to Executive block and B Block roof and Enclosing of
Ground and 3rd floor Verandah at Block C

WIMS No. 056789



MECHANICAL ENGINEERS

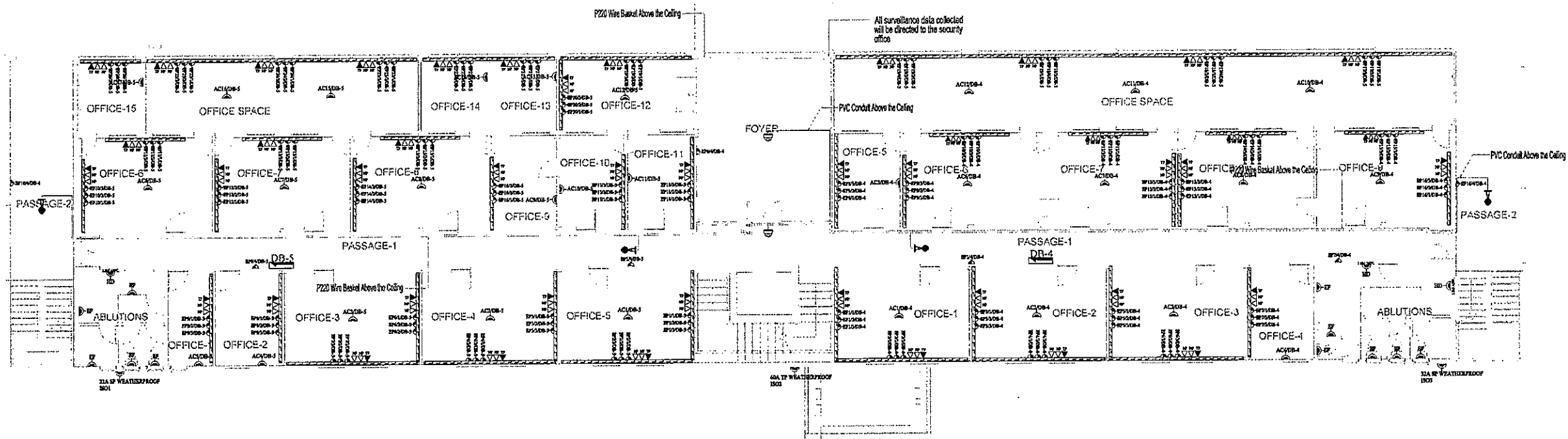
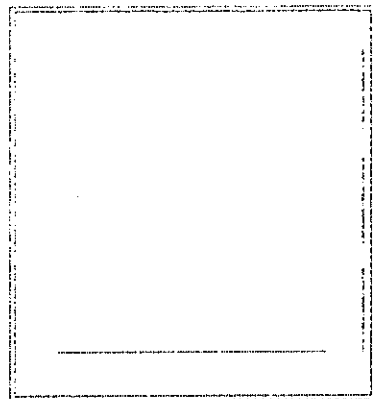


DRAWING TITLE
STAIRWAY CASE AND ELEVATOR SHAFT
PRESSURIZING SYSTEMS
BLOCK C

SCALE 1:100	DATE 07 Oct. 2021
DESIGNED C.N	CHECKED B.B

DRAWING No.
DOT-SPF-190-004

Revision
0



LEGEND: SMALL POWER LAYOUT	
	10A Single switch socket controlled switch/light - essential supply
	10A Single switch socket controlled switch/light - essential supply
	Location for hand dryer, Air Con Extractor Fan and Hydrant Hose
	Hot Point
	Telephone Point
	Type 'PZ20' Power Siding
	25mm conduit for lightning protection and earthing
	Electrical Distribution Board
	Telephone Distribution Board
	Indoor dome camera with day/night, 18 illumination, digital noise reduction and digital slow shutter technologies
	Outdoor PTZ camera with day/night, 18 illumination, digital noise reduction and digital slow shutter technologies
	Indoor bullet camera with day/night, 18 illumination, digital noise reduction and digital slow shutter technologies
	Outdoor bullet camera with day/night, 18 illumination, digital noise reduction and digital slow shutter technologies
	Network switch
	PVC single compartment power siding
	PZ20 Wire Banded
	PVC conduit

REQUIRED SIGNATURES:

FACILITY STAMP

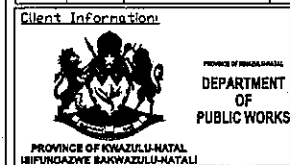
FACILITY MANAGER:

DISTRICT MANAGER:

AREA MANAGER:

STAMPED BY PLANS APPROVAL COMMITTEE

Revision			
Rev.No	Date	Description	By



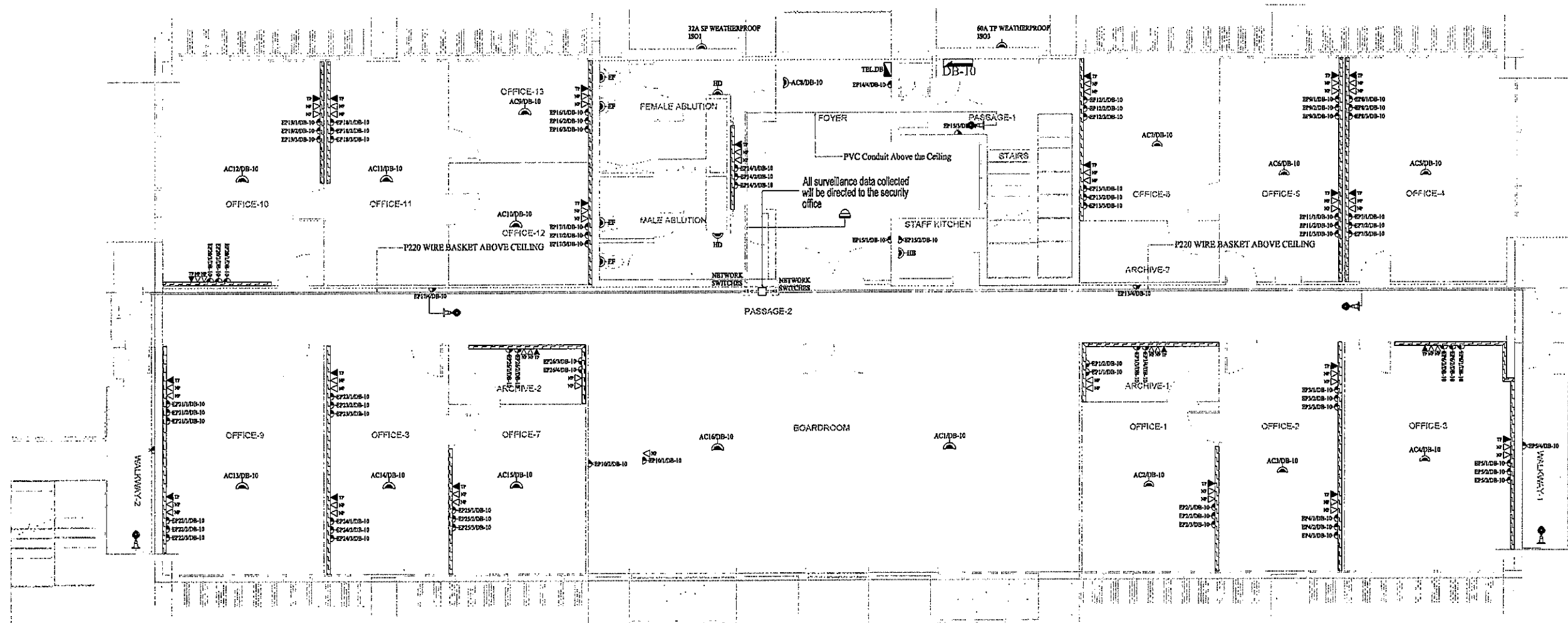
Architect Information:
AGAPE CDC Architects
36 Mckoy Drive
Ashburton
C : 072-701 7149
E : agape@agapedc.co.za

Engineer Information:
Njilo-njilo Consultancy Services
Consulting Engineers • Project Managers • Change Agents
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Tel: (033) 3965227
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E-MAIL: njilo@telkomso.net

PROJECT	
DEPARTMENT OF TRANSPORT	
DRAWING	
BLOCK FIRST FLOOR PLAN	
SCALE	1:1
DATE	11/11/2011
DESIGNED BY	11/11/2011
CHECKED BY	11/11/2011
PROJECT NO	SPOT/100/10/10/10
DATE	11/11/2011
PROJECT TITLE	SMALL POWER, DATA & COMMUNICATION LAYOUT
PROJECT LOCATION	ELECTRICAL INSTALLATION

TENDER DRAWING



SYMBOL	DESCRIPTION
	16A Double switch socket outlet with switch and switch-over (light - essential supply)
	16A Single switch socket outlet with switch-over (light - essential supply)
	Isolator for hand dryer, Air Con Extractor fan and Hydro-boiler
	Hot Point
	Telephone Point
	Type 'P802' Power Shunting
	20mm conduit for lightning protection and earthing
	Electrical Distribution Board
	Telephone Distribution Board
	Indoor dome camera with day/night, IR illumination, digital noise reduction and digital slow shutter technologies
	Outdoor PIR camera with day/night, IR illumination, digital noise reduction and digital slow shutter technologies
	Indoor Bullet camera with day/night, IR illumination, digital noise reduction and digital slow shutter technologies
	Outdoor Bullet camera with day/night, IR illumination, digital noise reduction and digital slow shutter technologies
	Network switch
	PVC single compartment power shunting
	P220 Wire Basket
	PVC conduit
	Borel conduit

REQUIRED SIGNATURES:

FACILITY STAMP

FACILITY MANAGER:

DISTRICT MANAGER:

AREA MANAGER:

STAMPED BY PLANS APPROVAL COMMITTEE

Revision:

Rev.No	Date	Description	By

Client Information



Architect Information

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Engineer Information

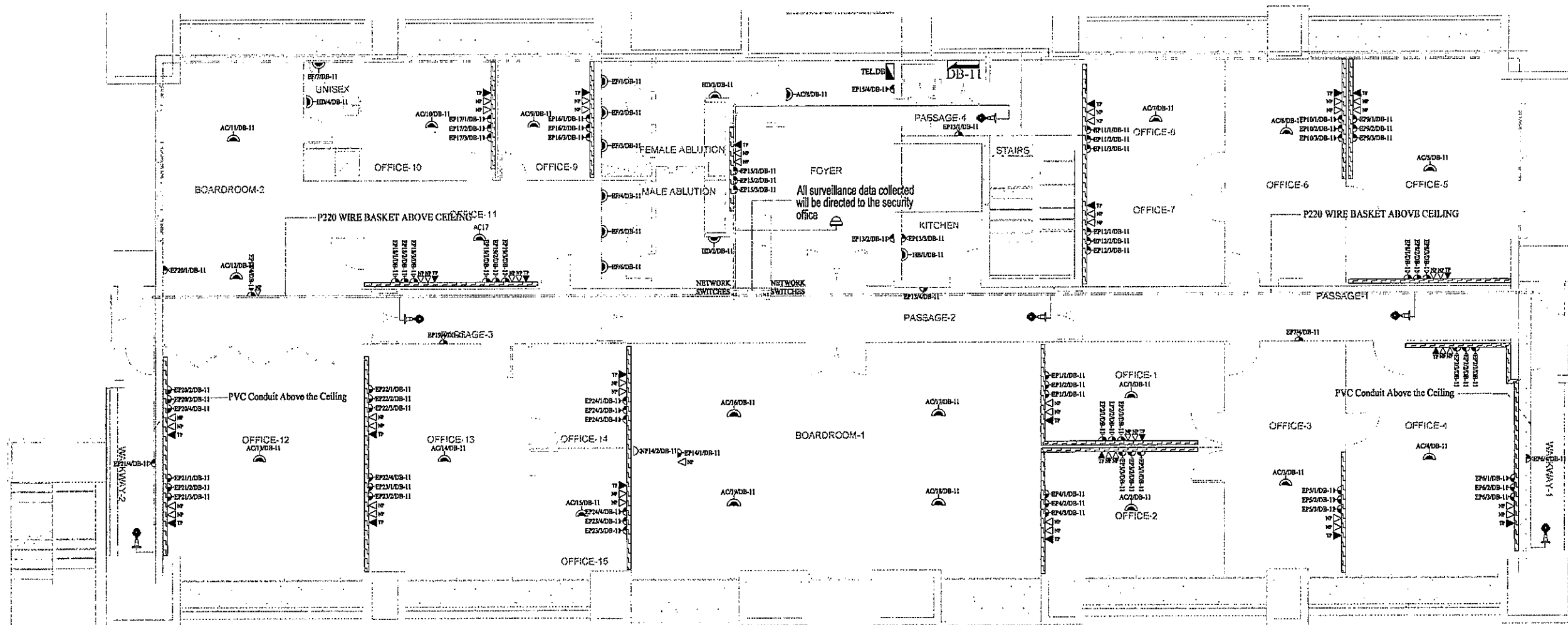
Njira-njira Consultancy Services
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ELECTRICAL & MECHANICAL CONSULTING ENGINEERS

DEPARTMENT OF TRANSPORT

EXECUTIVE BLOCK SECOND FLOOR PLAN

REV.	DATE	BY	CHK.

TENDER DRAWING



LEGEND: SMALL POWER LAYOUT

	15A Double in-line socket switch-to-go switchroom light - essential supply
	15A Single switch socket switchroom light - essential supply
	Isolation for Hand dryer, Air Con, Extractor Fan and Hydro-boiler
	Hot Plant
	Telephone Point
	Type 'P220' Power Switching
	25mm conduit for lightning protection and earthing
	Electrical Distribution Board
	Telephone Distribution Board
	Indoor dome camera with day/night, IR Illumination, digital noise reduction and digital slow shutter technology
	Outdoor PTZ camera with day/night, IR Illumination, digital noise reduction and digital slow shutter technology
	Indoor bullet camera with day/night, IR Illumination, digital noise reduction and digital slow shutter technology
	Outdoor bullet camera with day/night, IR Illumination, digital noise reduction and digital slow shutter technology
	Network switch
	PVC single compartment power piling
	P220 Wire Basket
	PVC conduit
	Base conduit

REQUIRED SIGNATURES:

FACILITY STAMP

FACILITY MANAGER

DISTRICT MANAGER

AREA MANAGER

STAMPED BY PLANS APPROVAL COMMITTEE

Revision:

Rev.No	Date	Description	By

Client Information

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF PUBLIC WORKS
MIFUNDAZWE SAKWAZULU-NATALI

Architect Information

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PROJECT:
DEPARTMENT OF TRANSPORT

EXECUTIVE BLOCK THIRD FLOOR PLAN

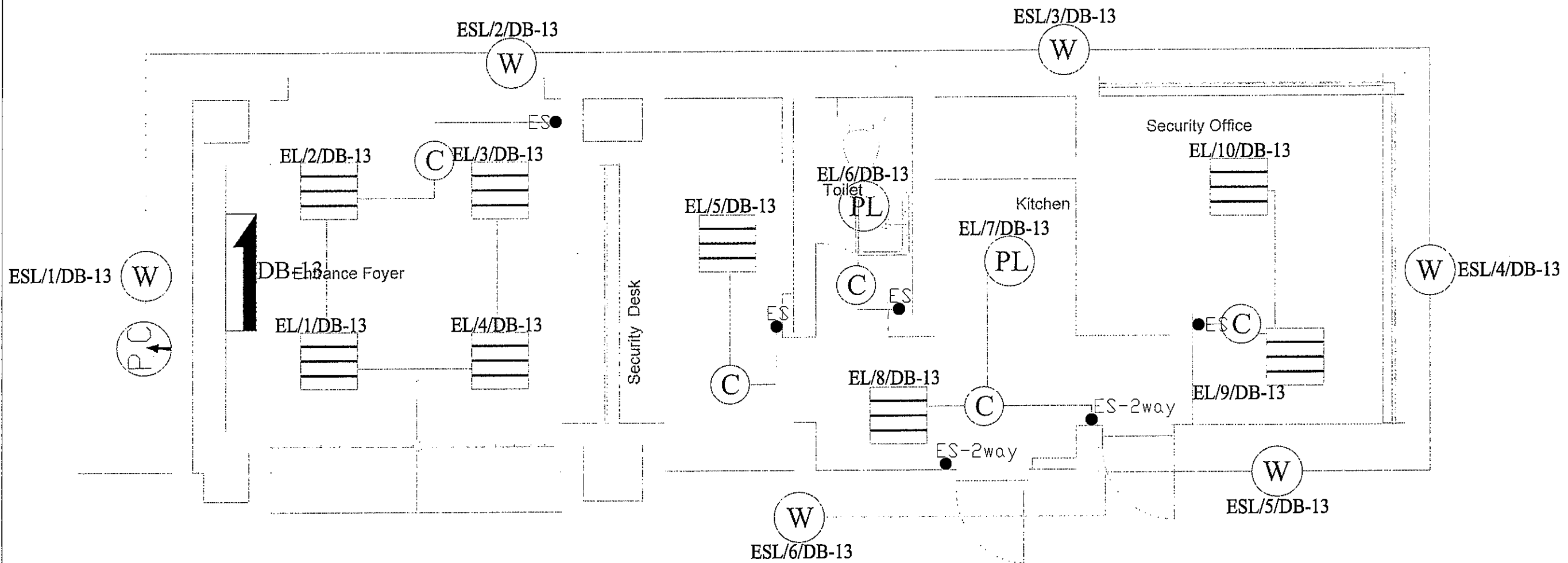
SCALE	DATE	BY	DATE	BY
1:1	15/05/2011	NJ	15/05/2011	NJ

PROJECT NO: SP027/2011/000001/01/01

PROJECT FILE: SMALL POWER/CTV & COMMUNICATION LAYOUT

ELECTRICAL INSTALLATION

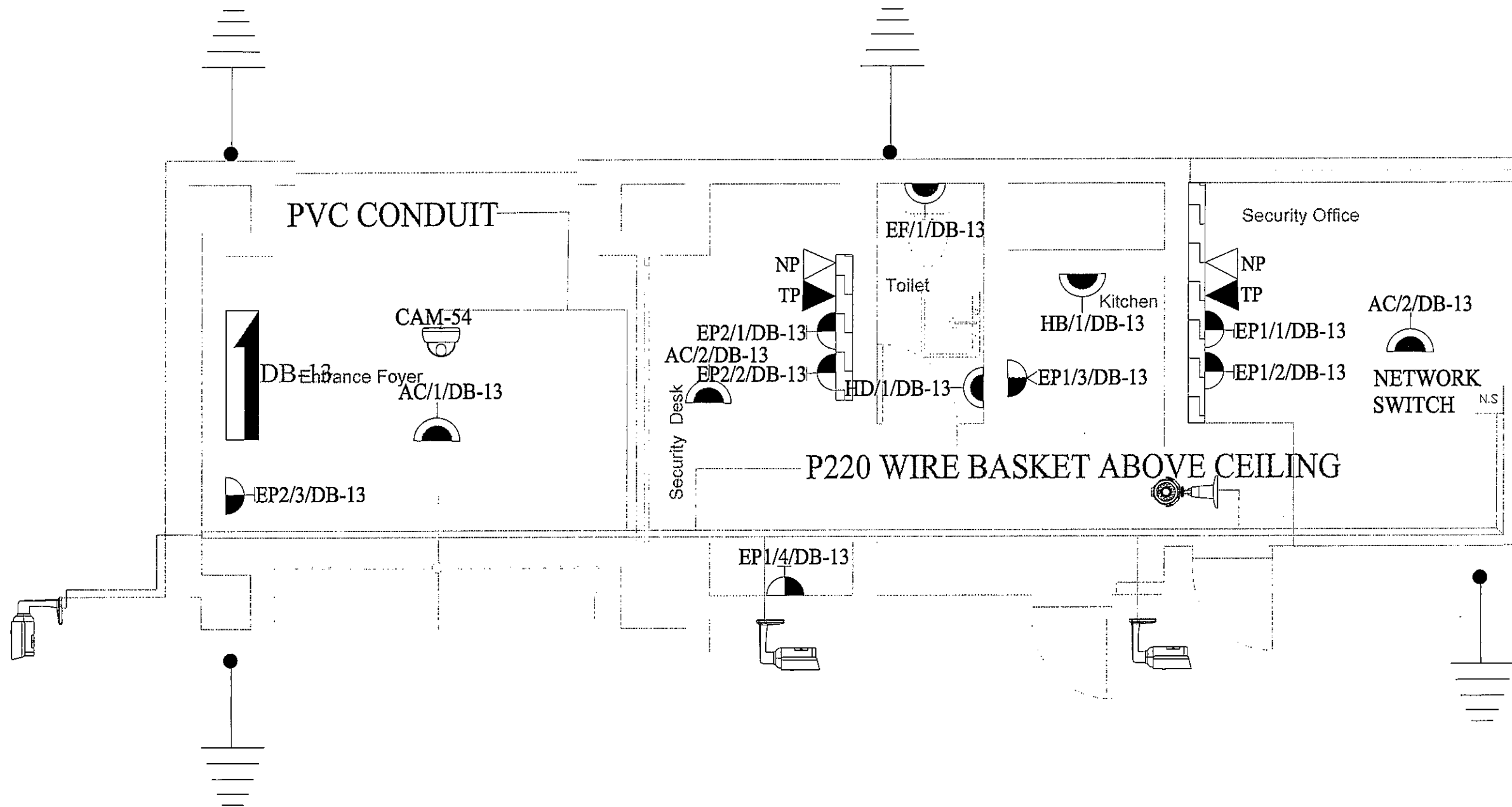
TENDER DRAWING



LEGEND LIGHTING LAYOUT			
W	Switch	1	1-way
C	Outlet	1	1-way
ES	Lighting Point	1	1-way
PL	Lighting Point	1	1-way
DB-13	Distribution Board	1	1-way
ESL/1/DB-13	Lighting Point	1	1-way
ESL/2/DB-13	Lighting Point	1	1-way
ESL/3/DB-13	Lighting Point	1	1-way
ESL/4/DB-13	Lighting Point	1	1-way
ESL/5/DB-13	Lighting Point	1	1-way
ESL/6/DB-13	Lighting Point	1	1-way
ESL/7/DB-13	Lighting Point	1	1-way
ESL/8/DB-13	Lighting Point	1	1-way
ESL/9/DB-13	Lighting Point	1	1-way
ESL/10/DB-13	Lighting Point	1	1-way
ES-2way	Lighting Point	1	2-way
ES-3way	Lighting Point	1	3-way
ES-4way	Lighting Point	1	4-way
ES-5way	Lighting Point	1	5-way
ES-6way	Lighting Point	1	6-way
ES-7way	Lighting Point	1	7-way
ES-8way	Lighting Point	1	8-way
ES-9way	Lighting Point	1	9-way
ES-10way	Lighting Point	1	10-way
ES-11way	Lighting Point	1	11-way
ES-12way	Lighting Point	1	12-way
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ES-15way	Lighting Point	1	15-way
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ES-100way	Lighting Point	1	100-way

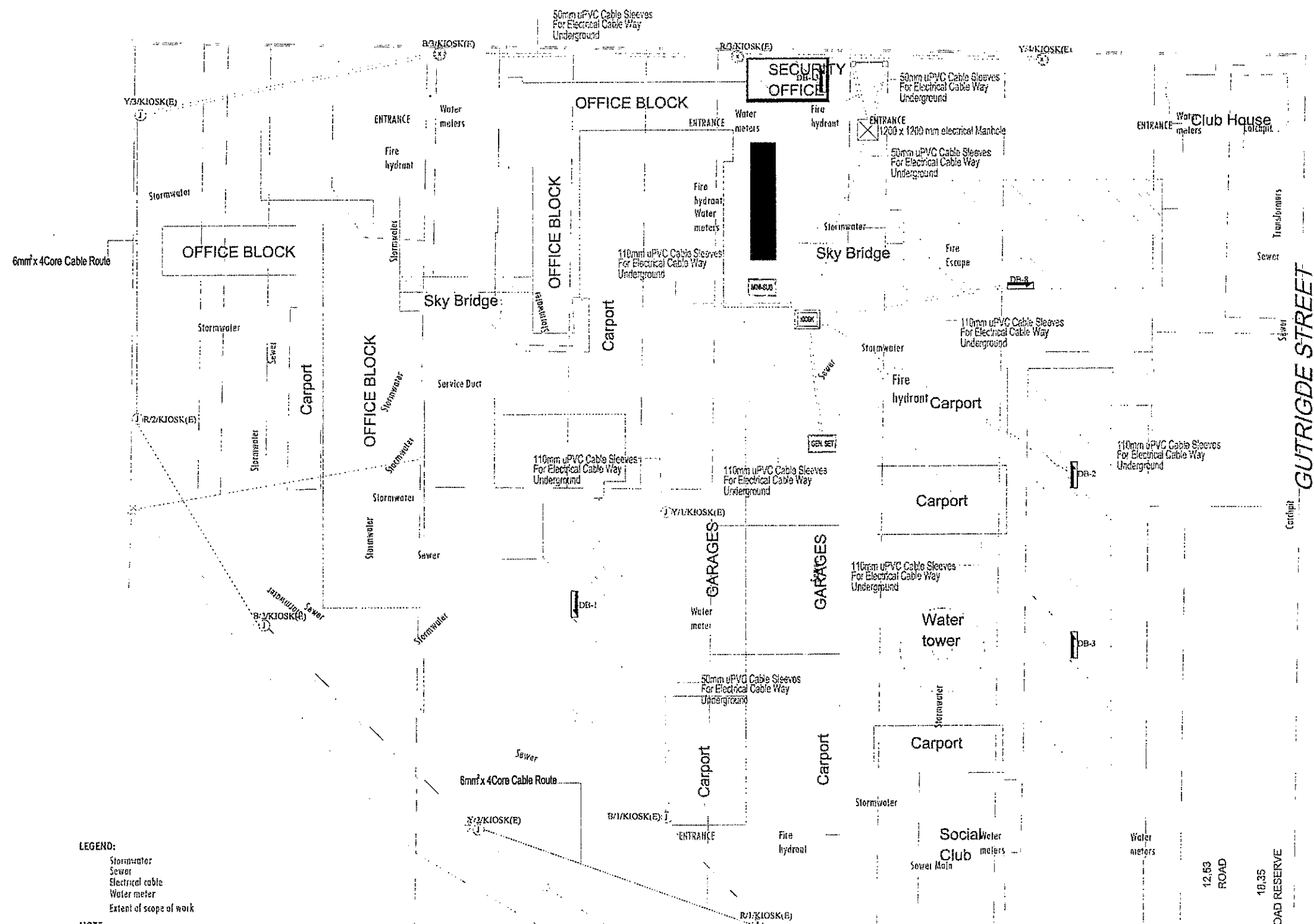
REQUIRED SIGNATURES:			
FACILITY STAMP			
FACILITY MANAGER:			
DISTRICT MANAGER:			
AREA MANAGER:			
STAMPED BY PLANS APPROVAL COMMITTEE			
Revision:			
Rev.No	Date	Description	By
Client Information:			
 PROVINCE OF KWAZULU-NATAL DEPARTMENT OF PUBLIC WORKS			
Architect Information:			
AGAPE CDC Architects 36 Mckay Drive Ashburton C : 072-701 7149 E : agape@agapedc.co.za			
Engineer Information:			
Njilo-njilo Consultancy Services Consulting Engineers • Project Managers • Design Agents 18 Burns Road Hayfields 3209 P.O. Box 101013 PIETERMARITZBURG 3209 Reg. No. Of: 06/43281/23 Tel: (033) 3965227			
ELECTRICAL & MECHANICAL CONSULTING ENGINEERS 18 BURNS ROAD, HAYFIELDS P.O. BOX 101013 PIETERMARITZBURG 3209 TEL : (033) 3965227 E-MAIL : njilo@telkomsa.net			
PROJECT:			
DEPARTMENT OF TRANSPORT			
SECURITY OFFICE FLOOR PLAN			
SCALE	DATE	DESIGNED	DRAWN
1:1	1/1/1	1/1/1	1/1/1
PROJECT NO	DATE OF ISSUE	BY	FOR
1/1/1	1/1/1	1/1/1	1/1/1
DRAWN BY: 1/1/1			
CHECKED BY: 1/1/1			
ELECTRICAL INSTALLATION			

TENDER DRAWING



LEGEND: SMALL POWER LAYOUT			
[Symbol]	16A Double switch socket outlet/two switch/one light - essential supply		
[Symbol]	16A Single switch socket outlet/two switch/one light - essential supply		
[Symbol]	Isolator for hand dryer, Air Con Extractor Fan and Hydracooler		
[Symbol]	Net Point		
[Symbol]	Telephone Point		
[Symbol]	Type 7980 Power Switching		
[Symbol]	25mm conduit for lightning protection and earthing		
[Symbol]	Electrical Distribution Board		
[Symbol]	Telephone Distribution Board		
[Symbol]	Indoor dome camera with day/night, 28 dimensions, digital noise reduction and digital slow shutter technology		
[Symbol]	Outdoor PIR camera with day/night, 36 dimensions, digital noise reduction and digital slow shutter technology		
[Symbol]	Indoor bullet camera with day/night, 28 dimensions, digital noise reduction and digital slow shutter technology		
[Symbol]	Outdoor bullet camera with day/night, 36 dimensions, digital noise reduction and digital slow shutter technology		
[Symbol]	Network switch		
[Symbol]	PVC single compartment power switching		
[Symbol]	P220 Wire Basket		
[Symbol]	PVC conduit		
[Symbol]	Rural conduit		
REQUIRED SIGNATURES:			
FACILITY STAMP			
FACILITY MANAGER:			
DISTRICT MANAGER:			
AREA MANAGER:			
STAMPED BY PLANS APPROVAL COMMITTEE			
Revision:			
Rev.No	Date	Description	By
Client Information:			
 REPUBLIC OF SOUTH AFRICA DEPARTMENT OF PUBLIC WORKS PROVINCE OF KWAZULU-NATAL ISIFUNDAZWE SAKWAZULU-NATALI			
Architect Information:			
AGAPE CDC Architects 36 McKay Drive Ashburton C : 072-701 7149 E : agape@agapecdc.co.za			
Engineer Information:			
Njilo-njilo Consultancy Services Consulting Engineers - Project Managers - Design Agents 18 Burns Road Hayfields 3209 P.O.Box 101013 PIETERMARITZBURG 3209 Reg. No. CK 98/4326/23 Tel: (033)3965227			
ELECTRICITY & MECHANICAL CONSULTING ENGINEERS 18 BURNS ROAD, HAYFIELDS P.O. BOX 101013 PIETERMARITZBURG 3209 TEL : (033) 3965227 E-MAIL: njilo@telkonsa.net			
PROJECT:			
DEPARTMENT OF TRANSPORT			
DRAWN:			
SECURITY OFFICE FLOOR PLAN			
SCALE	DATE	BY	DATE
1:1	10/11/13	10/11/13	10/11/13
PROJECT NO	DATE OF ISSUE	REVISION NO	REV. NO
SP/CCTV/CL/3/05/22/02	10/11/13	1	1
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			
ELECTRICAL INSTALLATION			

TENDER DRAWING



LEGEND:
 Stormwater
 Sewer
 Electrical cable
 Water meter
 Extent of scope of work

NOTE:
 This drawing is produced from an A4 PDF copy provided by DPW which is outdated and out of scale.
 An updated Survey Drawing is requested and must be consulted for accuracy.
 All positions of buildings and services must be verified with the requested updated Survey Drawing.

Scale
 1:250

LEGEND: SLEEVE LAYOUT	
ITEM/SYMBOL	TYPE
	KIOSK DISTRIBUTION BOARD
	DISTRIBUTION BOARD
	1200MM X 1200MM ELECTRICAL MANHOLE
	UPVC CABLE SLEEVE FOR ELECTRICAL
	43W LED POST TOP
	2x50W LED FLOOD LIGHTS MOUNTED ON 9.5M POLE
	BOOM GATE

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Stamped by Plans approval committee

Revision:

Rev.No	Date	Description	By

Client Information

PROVINCE OF KWAZULU-NATAL
 IZIFUNDAZWE KAWAZULU-NATAL

Architect Information

AGAPE CDC Architects
 36 McKay Drive
 Ashburton
 C : 072-701 7149
 E : agape@agapecdc.co.za

Engineer Information

ELECTRICAL & MECHANICAL CONSULTING ENGINEERS

18 BURNS ROAD
 P.O. BOX 191913
 PIETERMARITZBURG
 3201
 TEL : (033) 394522
 E-MAIL : njilo@telkomsa.net

PROJECT: REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSURE OF GROUND AND THIRD FLOOR VERANDAS AT BLOCK C

SITE PLAN

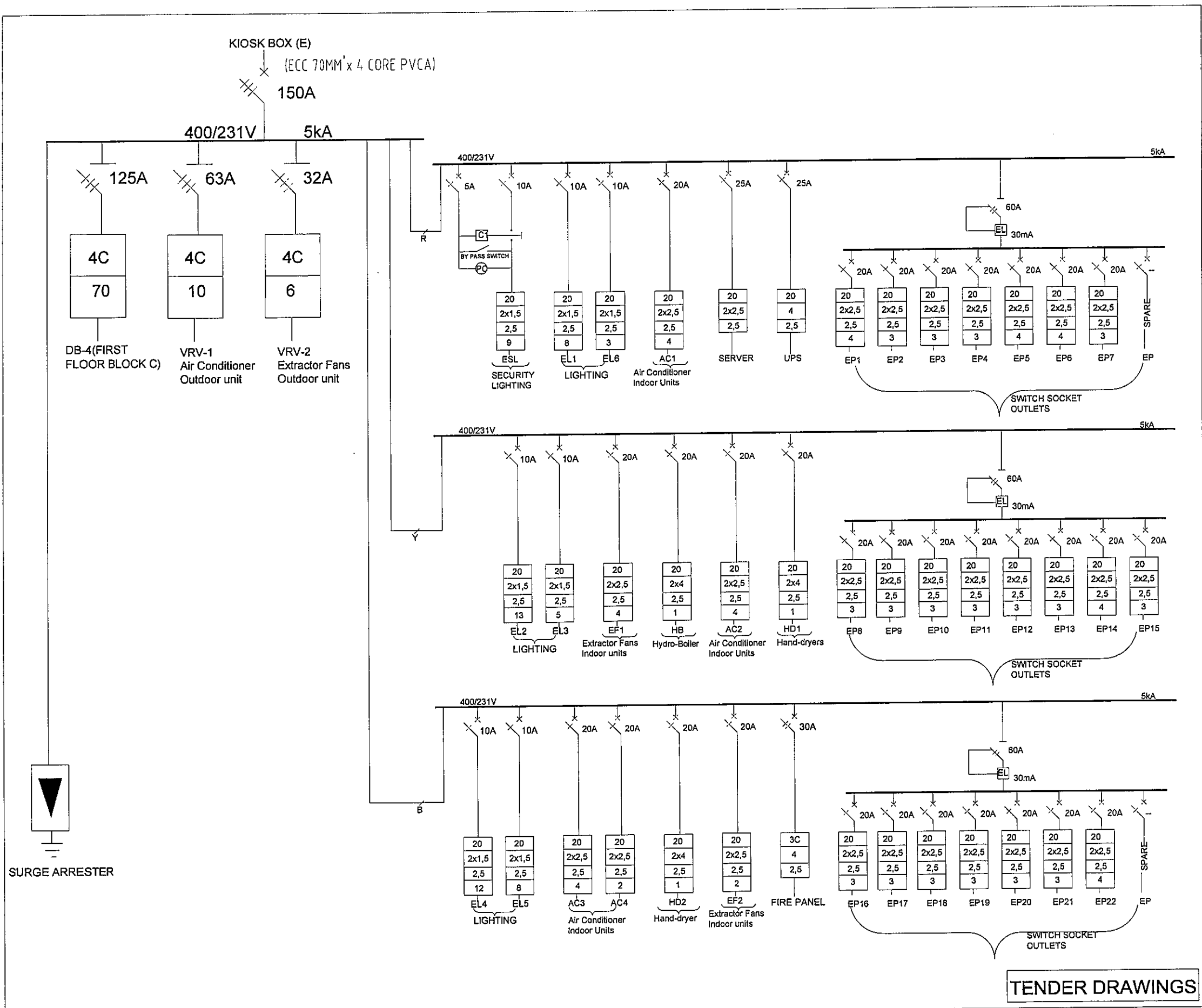
DATE	BY	CHECKED	DATE
18/03/2018	SAVILACI/SPASARIJE		

SAVILACI/SPASARIJE

SLEEVES, AREA LIGHTING & ACCESS CONTROL LAYOUT

ELECTRICAL INSTALLATION

TENDER DRAWING



NAME: DB-2 (E)	VOLTAGE: 400/231V		
RATING BUSBAR:	fault: 5kA		
SUPPLY: BOTTOM	☒	TOP ☐	SIDE ☐
FEEDER: BOTTOM	☒	TOP ☒	SIDE ☐
MOUNTING:	☐ FLOOR ☐		
RECESSED	☒	SURFACE ☐	
DOORS: YES	☒	NONE ☐	LOCABLE ☒
COLOUR: WHITE	☐	RED ☒	CREAM ☐
ORANGE	☐	GREY ☐	OTHER ☐
SURGE ARRESTORS	YES	☒	
SPARE SPACE:	30%		
LOCATION:	ON THE PASSAGE		

SINGLE POLE

DOUBLE POLE

TRIPPLE POLE

FOUR POLE

ISOLATOR SIZE AS SHOWN

MOULDED CASE CIRCUIT BREAKER SIZE AS SHOWN

EARTH LEAKAGE PROTECTION UNIT WITH DISCONNECTOR

BUSBAR

ELECTRICAL CONSUMPTION METER

PHOTOCELL

CONTACTOR 1

RELAY 1

CONDUIT SIZE mm

NO. & CONDUCTOR SIZE mm

EARTH CONDUCTOR mm

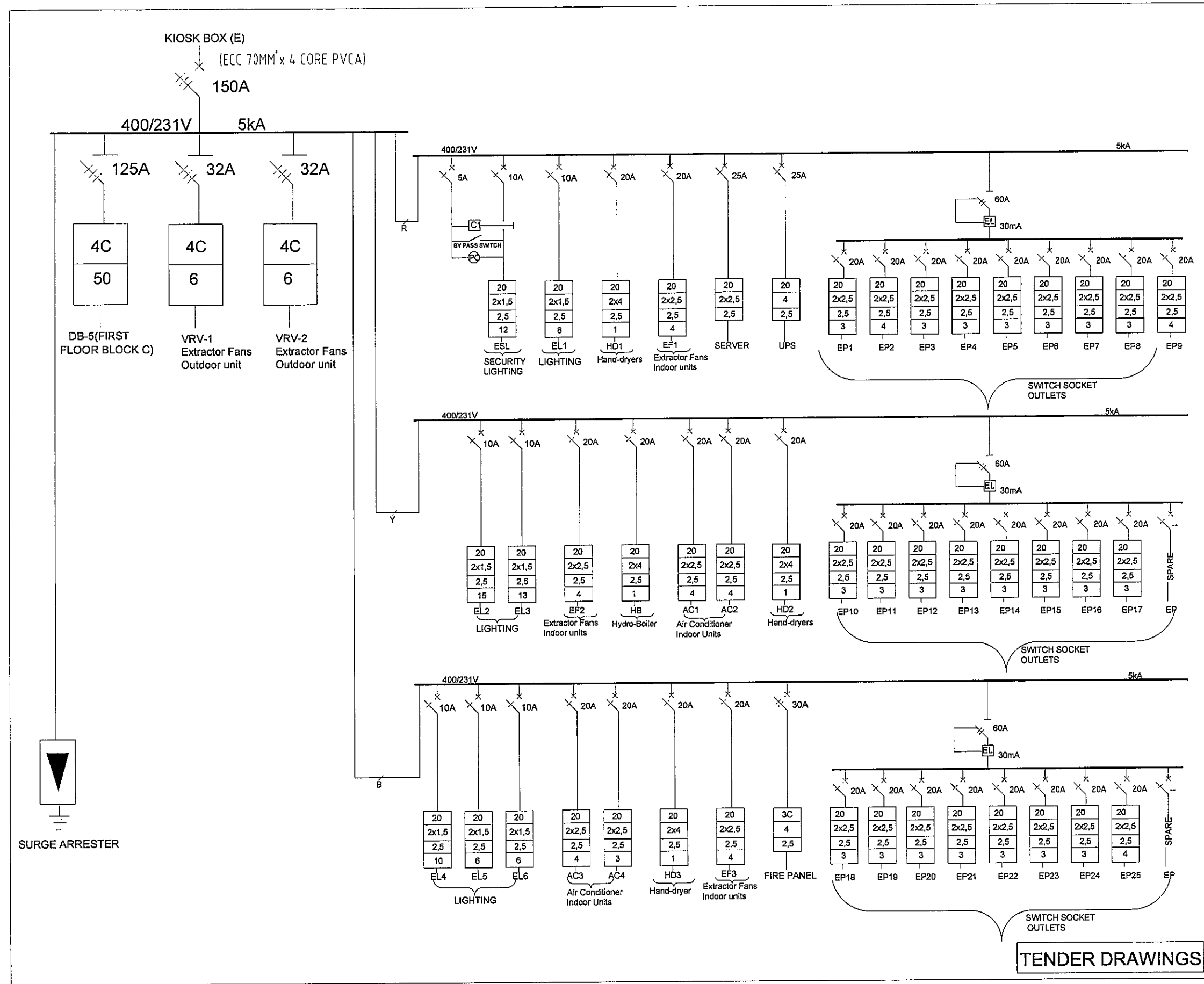
NUMBER OF UNITS

NO. OF CORES

CORE SIZE mm

CONTACTOR IN DB WITH BYPASS SWITCH IN DB, CONTROLLED VIA PHOTO CELL MOUNTED ELSEWHERE

TENDER DRAWINGS



NAME: DB-3 (E)		VOLTAGE: 400/231V			
RATING BUSBAR:		fault: 5kA			
SUPPLY: BOTTOM	☒	TOP	☐	SIDE	☐
FEEDER: BOTTOM	☒	TOP	☒	SIDE	☐
MOUNTING:			☐	FLOOR	☐
RECESSED			☒	SURFACE	☐
DOORS: YES	☒	NONE	☐	LOCABLE	☒
COLOUR: WHITE	☐	RED	☒	CREAM	☐
ORANGE	☐	GREY	☐	OTHER	☐
SURGE ARRESTORS		YES	☒		
SPARE SPACE:		30%			
LOCATION: ON THE PASSAGE					

SINGLE POLE

DOUBLE POLE

TRIPPLE POLE

FOUR POLE

ISOLATOR SIZE AS SHOWN

MOULDED CASE
CIRCUIT BREAKER
SIZE AS SHOWN

EARTH LEAKAGE
PROTECTION UNIT
WITH
DISCONNECTOR

BUSBAR

ELECTRICAL
CONSUMPTION
METER

PHOTOCELL

C1

CONTACTOR 1

RELAY 1

20

2x2,5

2,5

4

CONDUIT SIZE mm
NO. & CONDUCTOR SIZE mm
EARTH CONDUCTOR mm
NUMBER OF UNITS

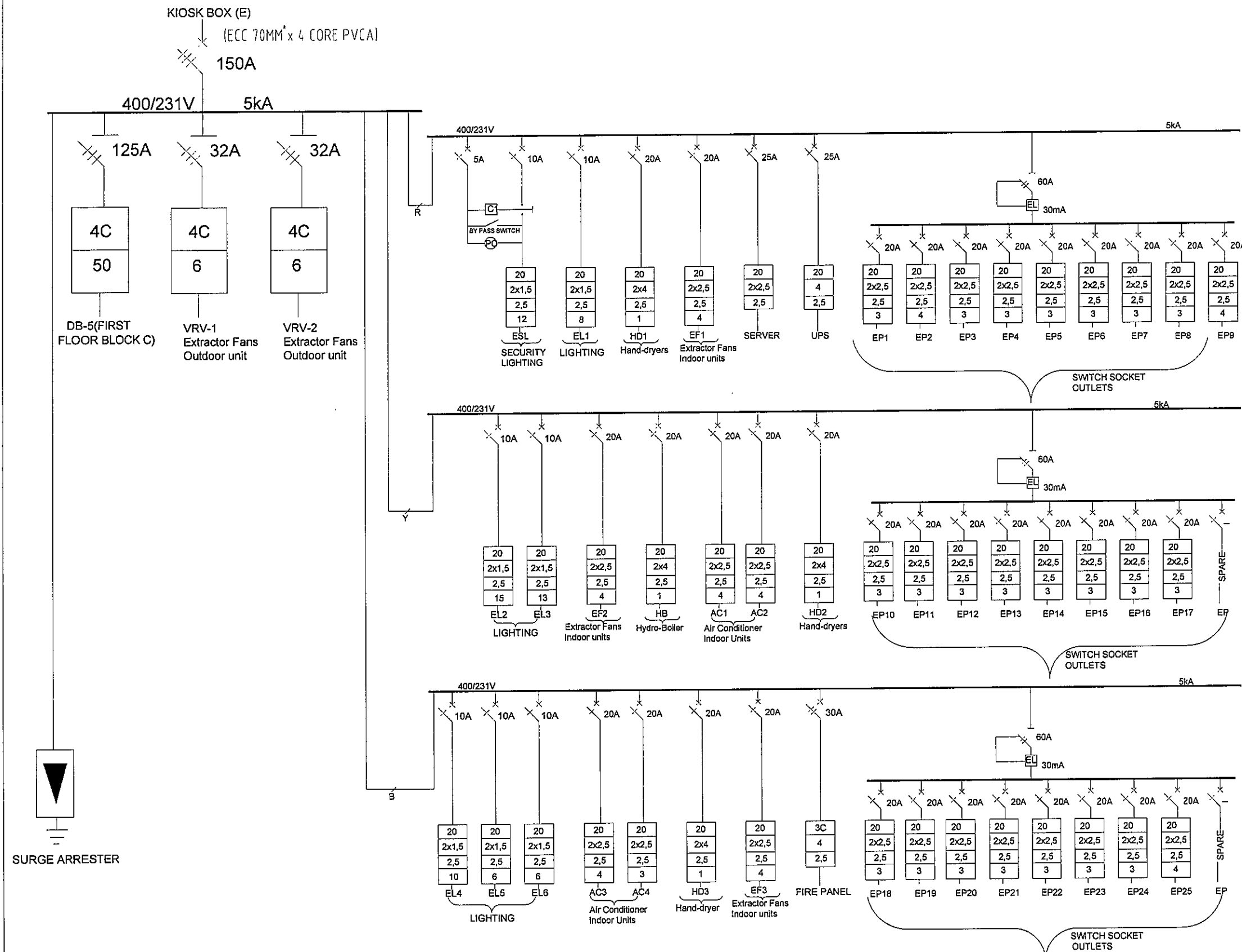
3C

16

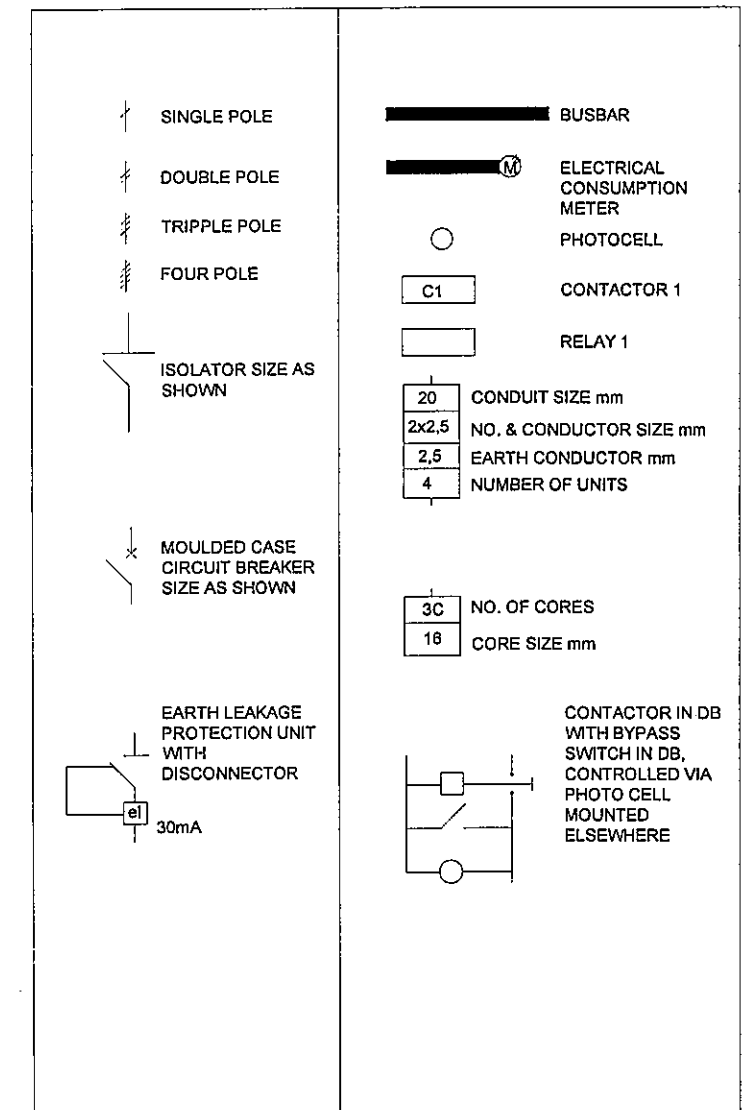
NO. OF CORES
CORE SIZE mm

CONTACTOR IN DB
WITH BYPASS
SWITCH IN DB,
CONTROLLED VIA
PHOTO CELL
MOUNTED
ELSEWHERE

Approved by Department: Signature: _____ DEPARTMENT OF PUBLIC WORKS	SCALE: NOT TO SCALE DRAWN: BS	DESIGNED: BS CHECKED: MH S	DATE: SEPTEMBER 2021 DATE: SEPTEMBER 2021		PROJECT: DOT HEAD OFFICE UPGRADE: REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C ELECTRICAL INSTALLATION ESSENTIAL CIRCUITS	FILE NAME: 19PMB/02E	DRAWING TITLE	DRAWING NUMBER	REV NO	DATE
							SINGLE LINE DIAGRAM DB-3 GROUND FLOOR BLOCK C	19PMB/02/6E	0	MARCH 2022

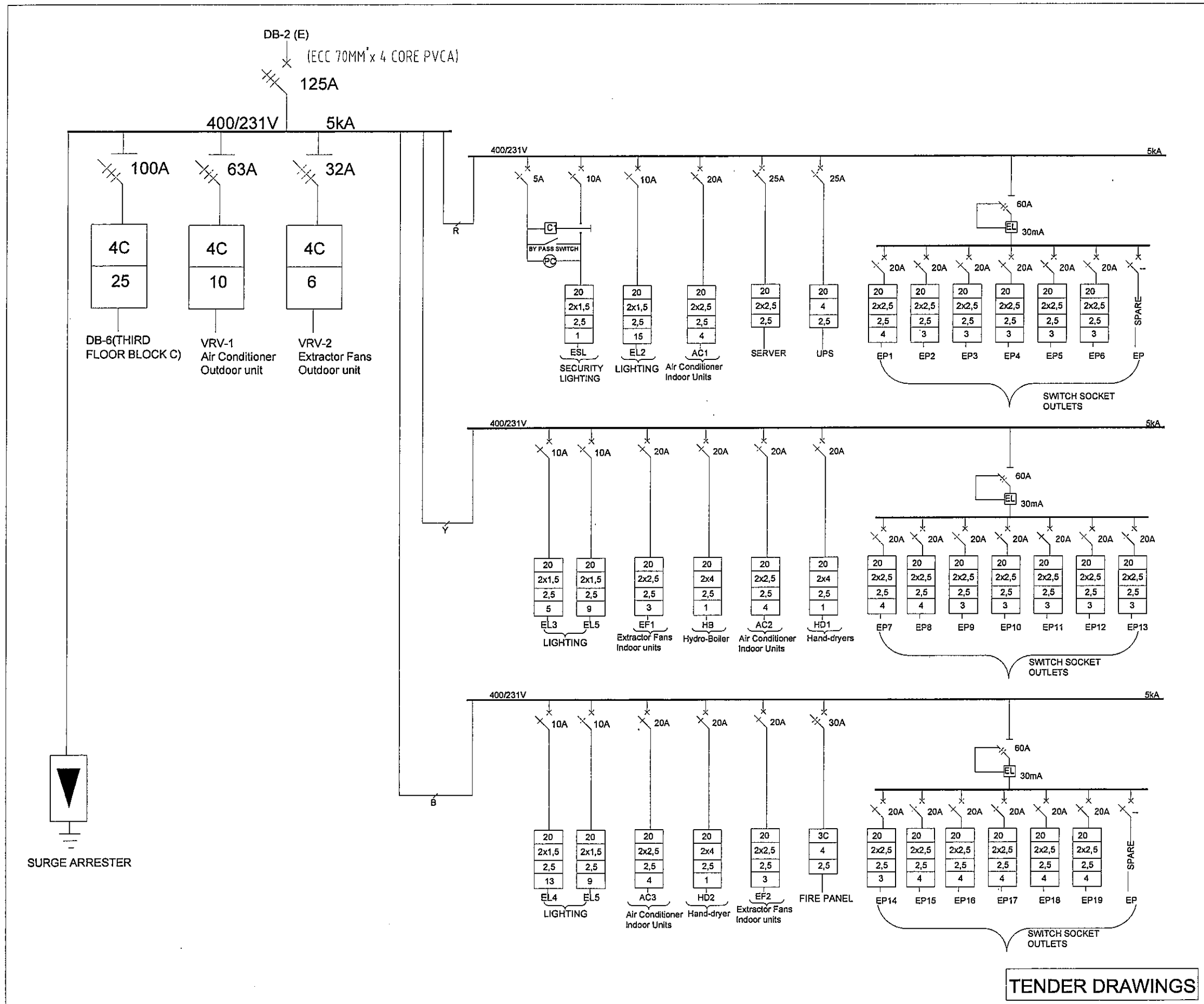


NAME: DB-3 (E)	VOLTAGE: 400/231V		
RATING BUSBAR:	fault: 5kA		
SUPPLY: BOTTOM	☒	TOP	☐
FEEDER: BOTTOM	☒	TOP	☒
MOUNTING:	☐	FLOOR	☐
RECESSED	☒	SURFACE	☐
DOORS: YES	☒	NONE	☐
COLOUR: WHITE	☐	RED	☒
ORANGE	☐	GREY	☐
OTHER	☐		
SURGE ARRESTORS	YES	☒	
SPARE SPACE:	30%		
LOCATION:	ON THE PASSAGE		



TENDER DRAWINGS

Approved by:	DESIGNED: B.S.	DATE: SEPTEMBER 2021	PROJECT: DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C	FILE NAME: 19PMB/02E	DRAWING TITLE: SINGLE LINE DIAGRAM DB-3 GROUND FLOOR BLOCK C	DRAWING NUMBER: 19PMB/02/6E	REV NO: 0	DATE: MARCH 2022
DEPARTMENT OF PUBLIC WORKS	CHECKED: N.M.S.	DATE: SEPTEMBER 2021	ELECTRICAL & MECHANICAL ENGINEERING					



NAME: DB-4 (E)	VOLTAGE: 400/231V		
RATING BUSBAR:	fault: 5kA		
SUPPLY: BOTTOM	☒	TOP ☐	SIDE ☐
FEEDER: BOTTOM	☒	TOP ☒	SIDE ☐
MOUNTING:	☐ FLOOR ☐		
	☒ SURFACE ☐		
DOORS: YES	☒	NONE ☐	LOCABLE ☒
COLOUR: WHITE	☐	RED ☒	CREAM ☐
	☐ ORANGE	☐ GREY	☐ OTHER
SURGE ARRESTORS	YES ☒		
SPARE SPACE:	30%		
LOCATION:	ON THE PASSAGE		

SINGLE POLE

DOUBLE POLE

TRIPPLE POLE

FOUR POLE

ISOLATOR SIZE AS SHOWN

MOULDED CASE CIRCUIT BREAKER SIZE AS SHOWN

EARTH LEAKAGE PROTECTION UNIT WITH DISCONNECTOR

BUSBAR

ELECTRICAL CONSUMPTION METER

PHOTOCELL

C1

CONTACTOR 1

RELAY 1

20

CONDUIT SIZE mm

2x2,5

NO. & CONDUCTOR SIZE mm

2,5

EARTH CONDUCTOR mm

4

NUMBER OF UNITS

3C

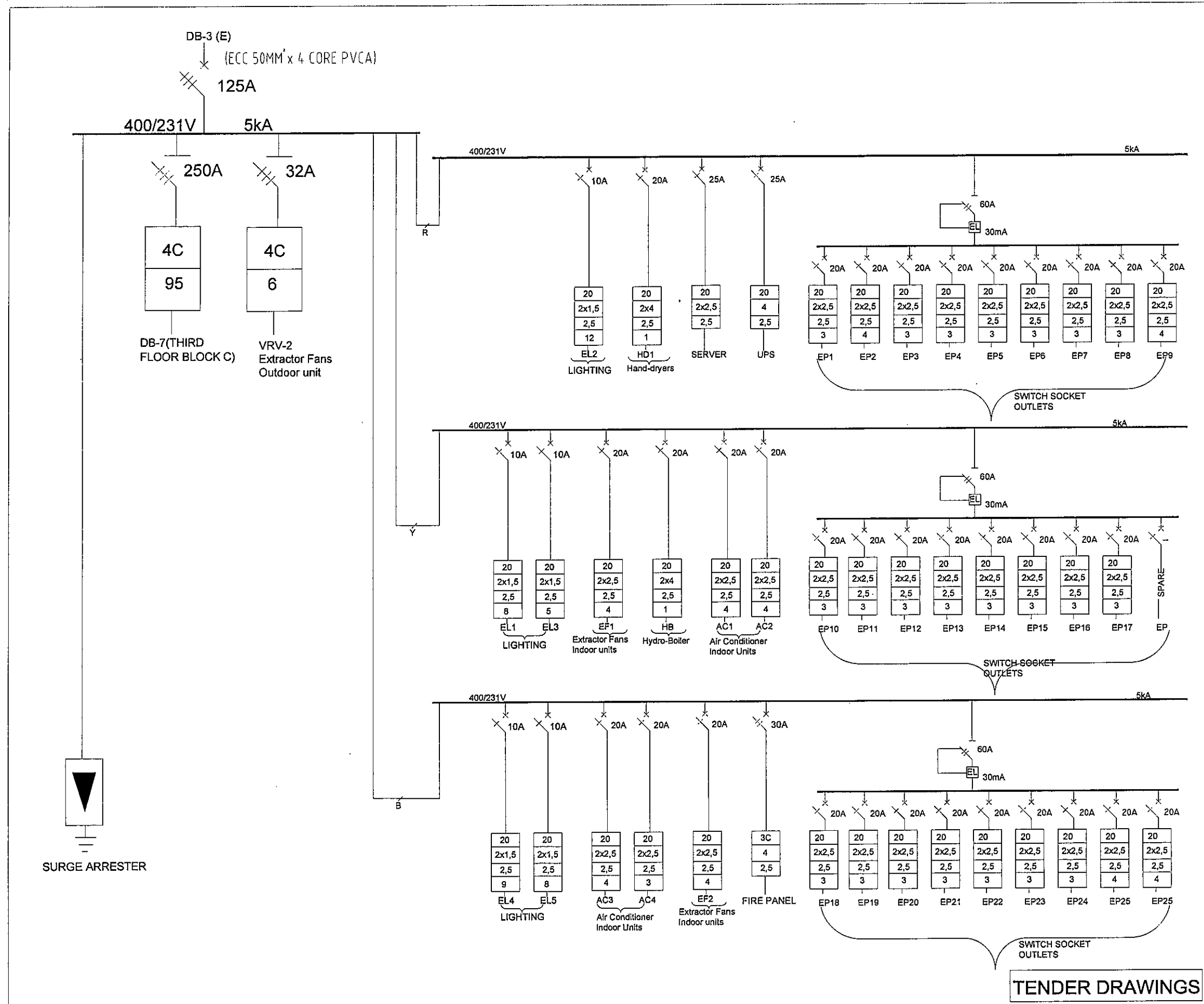
NO. OF CORES

16

CORE SIZE mm

CONTACTOR IN DB WITH BYPASS SWITCH IN DB, CONTROLLED VIA PHOTO CELL MOUNTED ELSEWHERE

Approved by Department DEPARTMENT OF PUBLIC WORKS	DESIGNED BS CHECKED H.M.S	DATE SEPTEMBER 2021	Hydra-jila Consultancy Services 100, Jalan... Kuala Lumpur 50000 Tel: (603) 4123 4567 Fax: (603) 4123 4568 E-MAIL: hydra@hydrajila.com ESSENTIAL & MECHANICAL CONSULTING SERVICES 100, Jalan... Kuala Lumpur 50000 Tel: (603) 4123 4567 Fax: (603) 4123 4568 E-MAIL: hydra@hydrajila.com	PROJECT DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C ELECTRICAL INSTALLATION ESSENTIAL CIRCUITS	FILE NAME 19PMB/02E	DRAWING TITLE SINGLE LINE DIAGRAM DB-4 FIRST FLOOR BLOCK C	DRAWING NUMBER 19PMB/02/6E	REV NO 0	DATE MARCH 2022
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NAME: DB-5 (E)	VOLTAGE: 400/231V		
RATING BUSBAR:	fault: 5kA		
SUPPLY: BOTTOM	☒	TOP ☐	SIDE ☐
FEEDER: BOTTOM	☒	TOP ☒	SIDE ☐
MOUNTING:	☐ FLOOR ☐		
	☒ RECESSED ☐ SURFACE ☐		
DOORS: YES	☒	NONE ☐	LOCABLE ☒
COLOUR: WHITE	☐	RED ☒	CREAM ☐
	☐ ORANGE	☐ GREY	☐ OTHER
SURGE ARRESTORS	YES ☒		
SPARE SPACE:	30%		
LOCATION:	ON THE PASSAGE		

SINGLE POLE
 DOUBLE POLE
 TRIPPLE POLE
 FOUR POLE
 ISOLATOR SIZE AS SHOWN
 MOULDED CASE CIRCUIT BREAKER SIZE AS SHOWN
 EARTH LEAKAGE PROTECTION UNIT WITH DISCONNECTOR

BUSBAR
 ELECTRICAL CONSUMPTION METER
 PHOTOCCELL
 CONTACTOR 1
 RELAY 1

20

2x2,5

2,5

4

20

2x2,5

2,5

4

3C

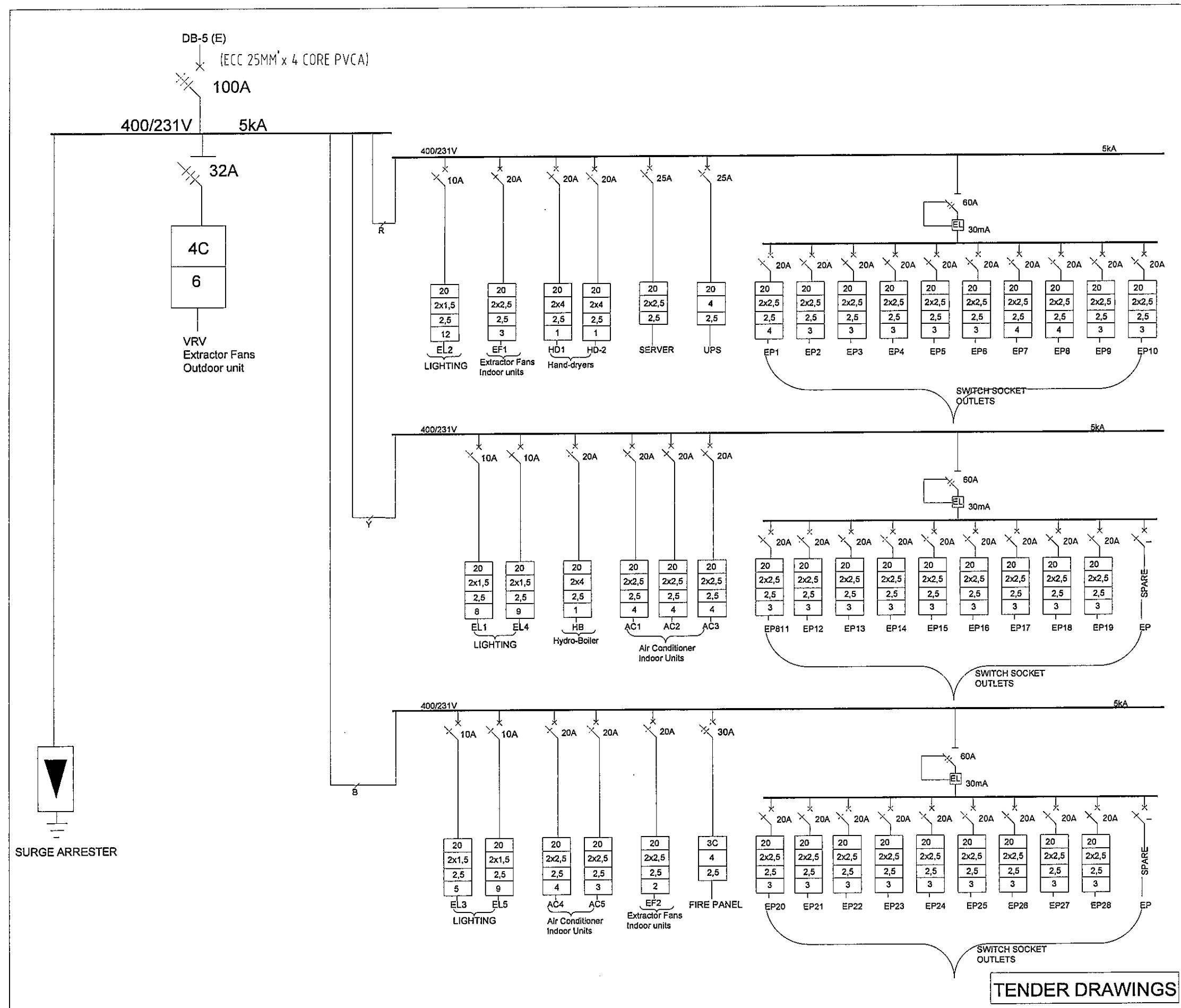
16

NO. OF CORES

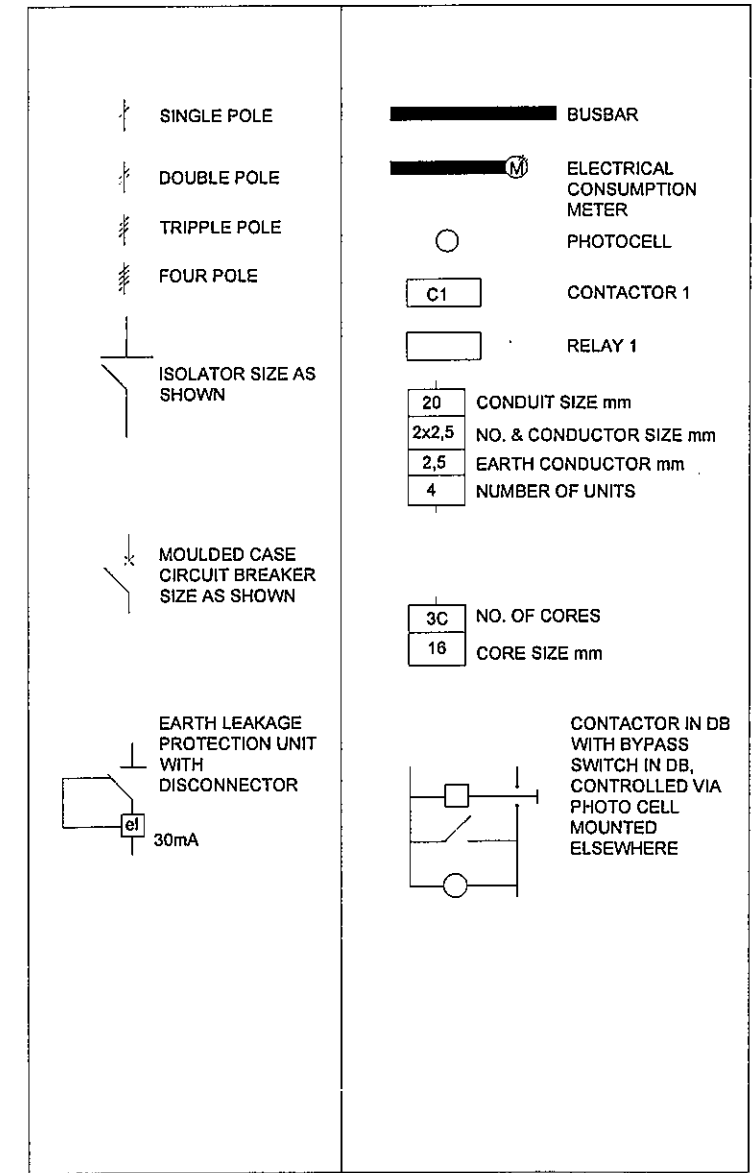
CORE SIZE mm

CONTACTOR IN DB WITH BYPASS SWITCH IN DB, CONTROLLED VIA PHOTO CELL MOUNTED ELSEWHERE

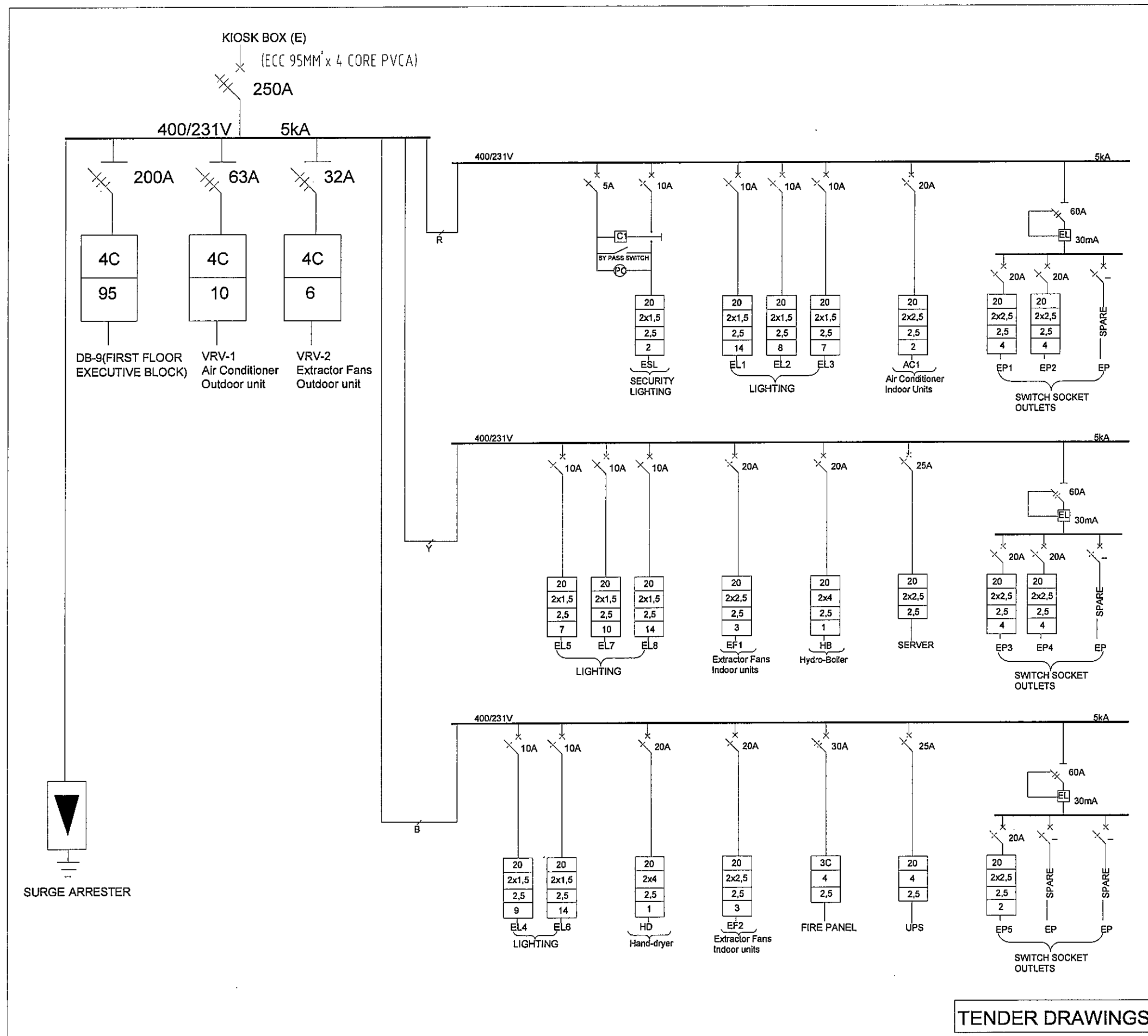
Approved by Department: DEPARTMENT OF PUBLIC WORKS	Scale: NOT TO SCALE	DESIGNED: B.S.	DATE: SEPTEMBER 2021	PROJECT: DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C	FILE NAME: 19PMB/02E	DRAWING TITLE: SINGLE LINE DIAGRAM DB-5 FIRST FLOOR BLOCK C	DRAWING NUMBER: 19PMB/02/6E	REV NO: 0	DATE: MARCH 2022
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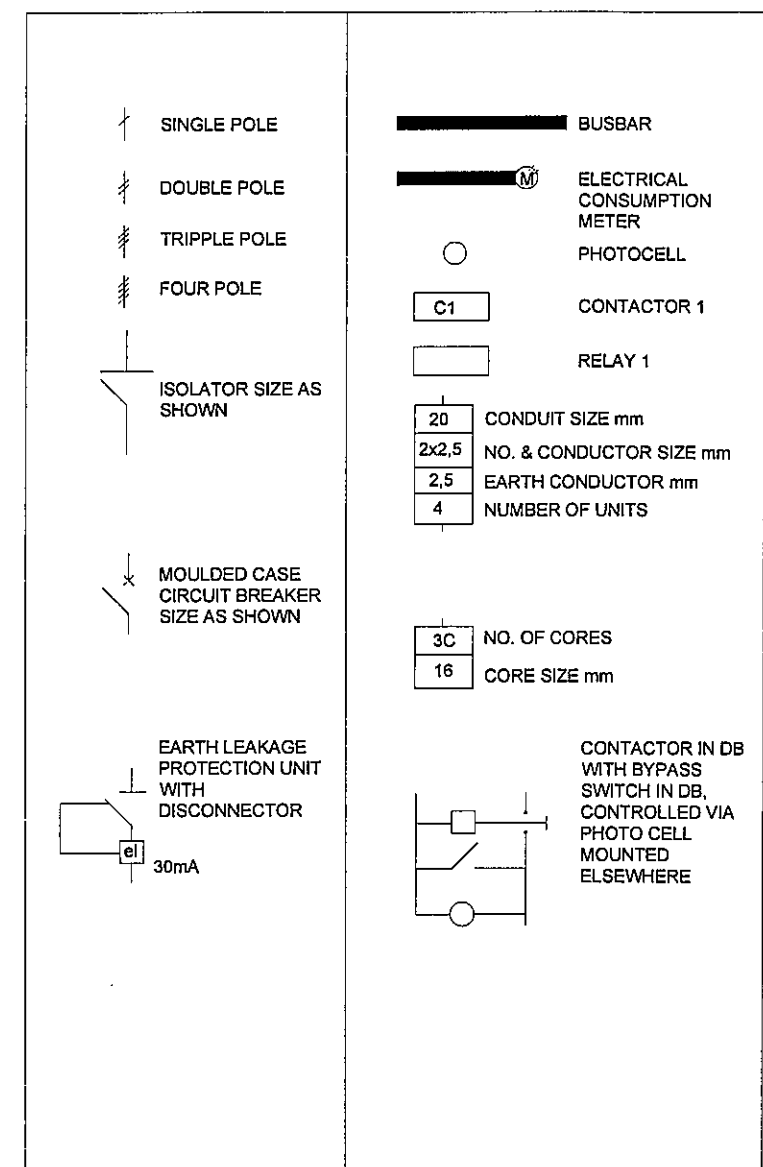
NAME: DB-7 (E)		VOLTAGE: 400/231V			
RATING BUSBAR:		fault: 5kA			
SUPPLY: BOTTOM	☒	TOP	☐	SIDE	☐
FEEDER: BOTTOM	☒	TOP	☒	SIDE	☐
MOUNTING:			☐	FLOOR	☐
RECESSED			☒	SURFACE	☐
DOORS: YES	☒	NONE	☐	LOCABLE	☒
COLOUR: WHITE	☐	RED	☒	CREAM	☐
ORANGE	☐	GREY	☐	OTHER	☐
SURGE ARRESTORS		YES	☒		
SPARE SPACE:		30%			
LOCATION: ON THE PASSAGE					



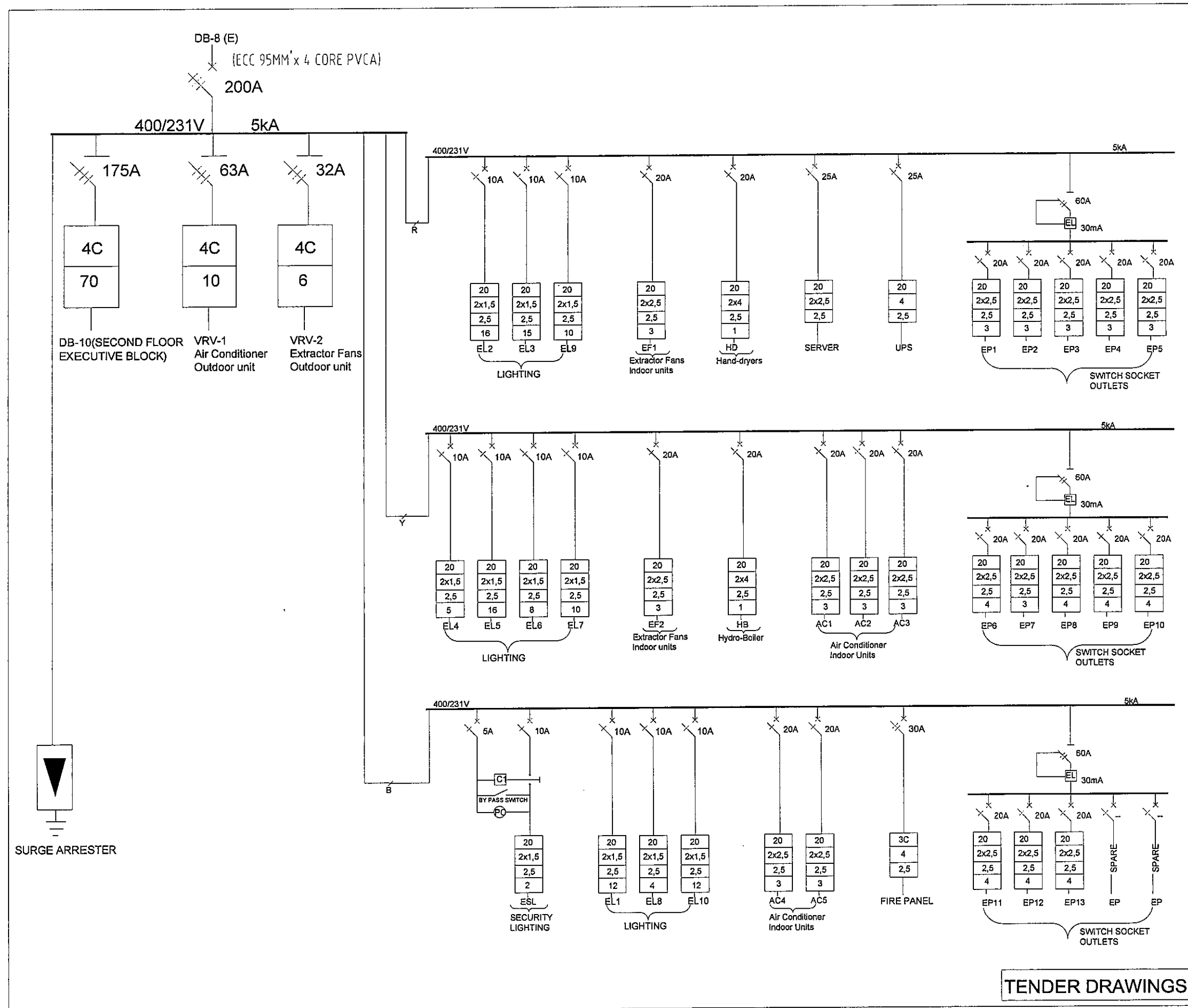
Approved by Department	Signature	Date	SCALE	DESIGNED	DATE	PROJECT	FILE NAME	DRAWING TITLE	DRAWING NUMBER	REV NO	DATE
DEPARTMENT OF PUBLIC WORKS			NOT TO SCALE	BS	SEPTEMBER 2021	DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C	19PMB/02E	SINGLE LINE DIAGRAM DB-7 THIRD FLOOR BLOCK C	19PMB/02/6E	0	MARCH 2022
			DRAWN	CHECKED	DATE	ELECTRICAL INSTALLATION					
			BS	MM S	SEPTEMBER 2021	ESSENTIAL CIRCUITS					



NAME: DB-8 (E)		VOLTAGE: 400/231V			
RATING BUSBAR:		fault: 5kA			
SUPPLY: BOTTOM	☒	TOP	☐		
FEEDER: BOTTOM	☒	TOP	☒		
MOUNTING:		☐	FLOOR	☐	
RECESSED		☒	SURFACE	☐	
DOORS: YES	☒	NONE	☐	LOCABLE	☒
COLOUR: WHITE	☐	RED	☒	CREAM	☐
ORANGE	☐	GREY	☐	OTHER	☐
SURGE ARRESTORS		YES	☒		
SPARE SPACE:		30%			
LOCATION: ON THE PASSAGE					



Approved by Department Signature Date DEPARTMENT OF PUBLIC WORKS	DESIGNED B.S. CHECKED N.H.S.	DATE SEPTEMBER 2021 DATE SEPTEMBER 2021		PROJECT DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C ELECTRICAL INSTALLATION ESSENTIAL CIRCUITS	FILE NAME 19PMB/02E	DRAWING TITLE SINGLE LINE DIAGRAM DB-8 GROUND FLOOR EXECUTIVE BLOCK	DRAWING NUMBER 19PMB/02/6E	REV NO 0	DATE MARCH 2022



NAME: DB-9 (E)		VOLTAGE: 400/231V			
RATING BUSBAR:		fault: 5kA			
SUPPLY: BOTTOM	☒	TOP	☐		
FEEDER: BOTTOM	☒	TOP	☒		
MOUNTING:		☐	FLOOR	☐	
RECESSED		☒	SURFACE	☐	
DOORS: YES	☒	NONE	☐	LOCABLE	☒
COLOUR: WHITE	☐	RED	☒	CREAM	☐
ORANGE	☐	GREY	☐	OTHER	☐
SURGE ARRESTORS		YES	☒		
SPARE SPACE:		30%			
LOCATION: ON THE PASSAGE					

SINGLE POLE

DOUBLE POLE

TRIPPLE POLE

FOUR POLE

ISOLATOR SIZE AS SHOWN

MOULDED CASE CIRCUIT BREAKER SIZE AS SHOWN

EARTH LEAKAGE PROTECTION UNIT WITH DISCONNECTOR

BUSBAR

ELECTRICAL CONSUMPTION METER

PHOTOCELL

C1

CONTACTOR 1

RELAY 1

20

CONDUIT SIZE mm

2x2,5

NO. & CONDUCTOR SIZE mm

2,5

EARTH CONDUCTOR mm

4

NUMBER OF UNITS

3C

NO. OF CORES

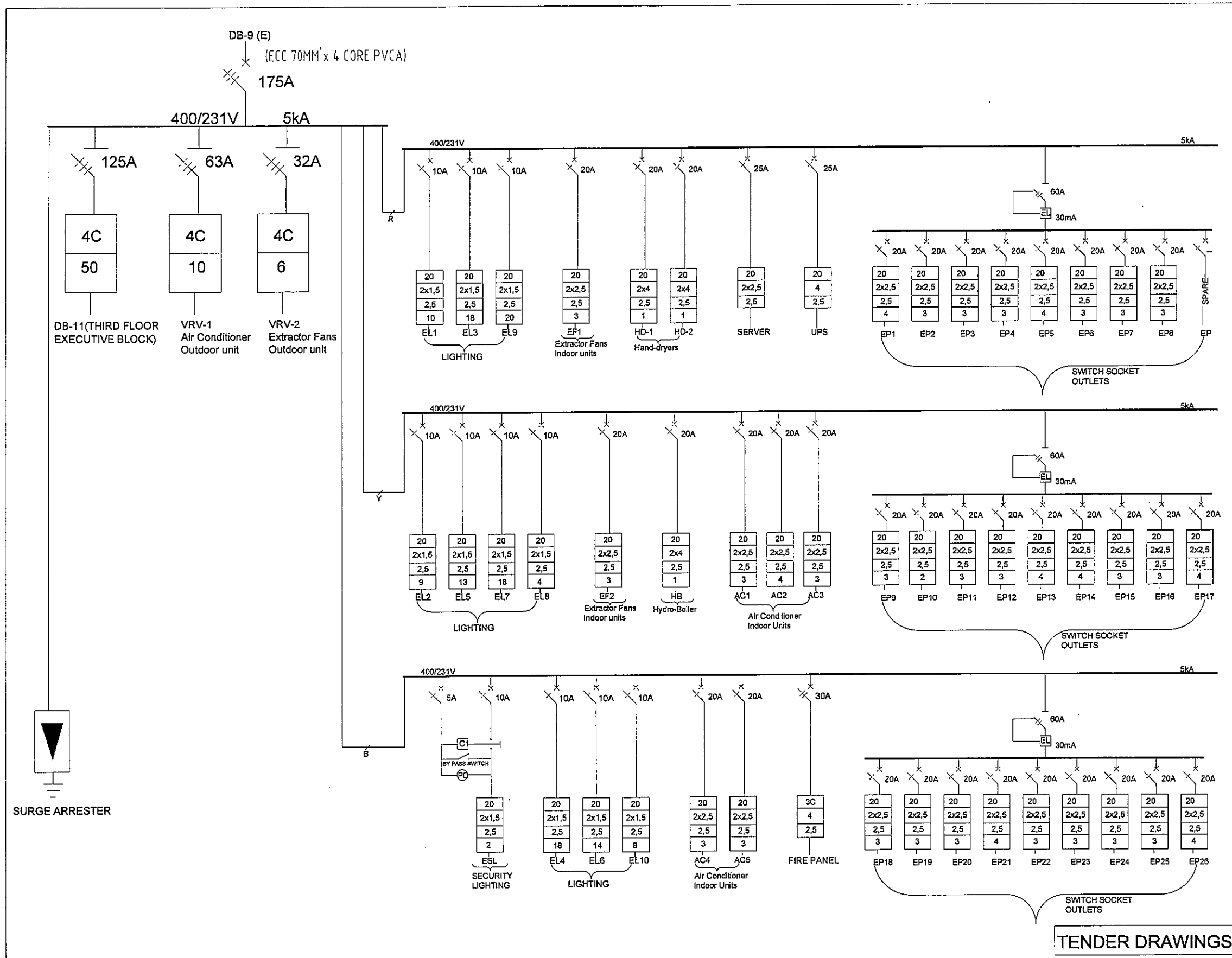
16

CORE SIZE mm

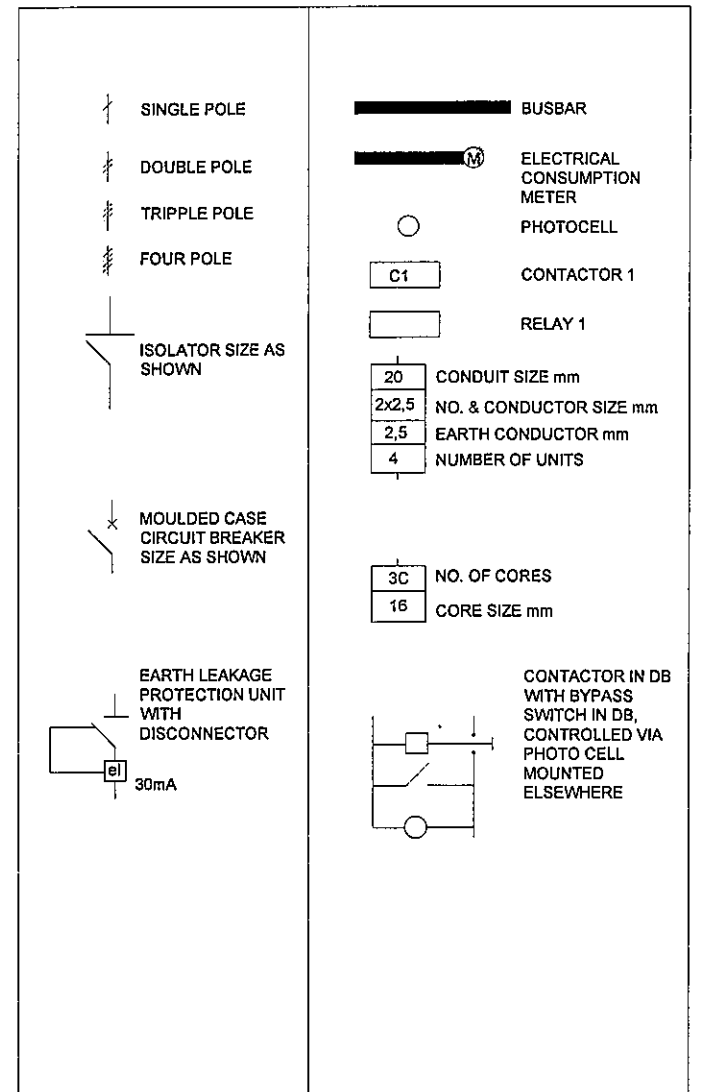
CONTACTOR IN DB WITH BYPASS SWITCH IN DB, CONTROLLED VIA PHOTO CELL MOUNTED ELSEWHERE

TENDER DRAWINGS

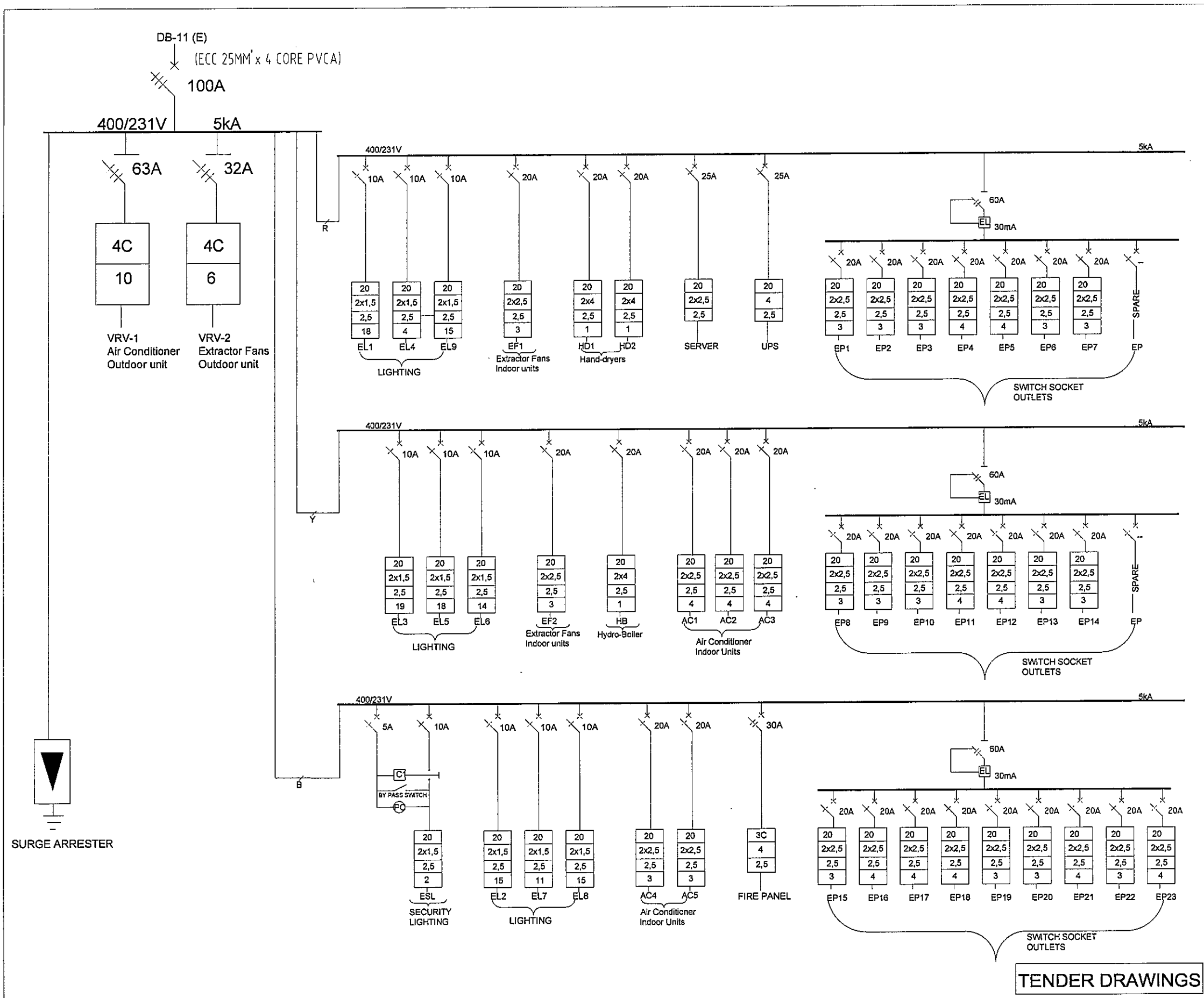
Approved by Department Signature Date DEPARTMENT OF PUBLIC WORKS	SCALE NOT TO SCALE DRAWN B S	DESIGNED B S	DATE SEPTEMBER 2021	 Hydro-geo Consultancy Services Engineering & Project Management 11, Jalan Bukit Puchong, 47100 Puchong Selangor, Malaysia Tel: 03-8921 1234 Fax: 03-8921 1235 E-mail: info@hydrogeo.net	PROJECT DOT HEAD OFFICE UPGRADE REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C ELECTRICAL INSTALLATION ESSENTIAL CIRCUITS	FILE NAME 19PMB/02E	DRAWING TITLE SINGLE LINE DIAGRAM DB-9 FIRST FLOOR EXECUTIVE BLOCK	DRAWING NUMBER 19PMB/02/6E	REV NO 0	DATE MARCH 2022
		CHECKED MM S	DATE SEPTEMBER 2021							



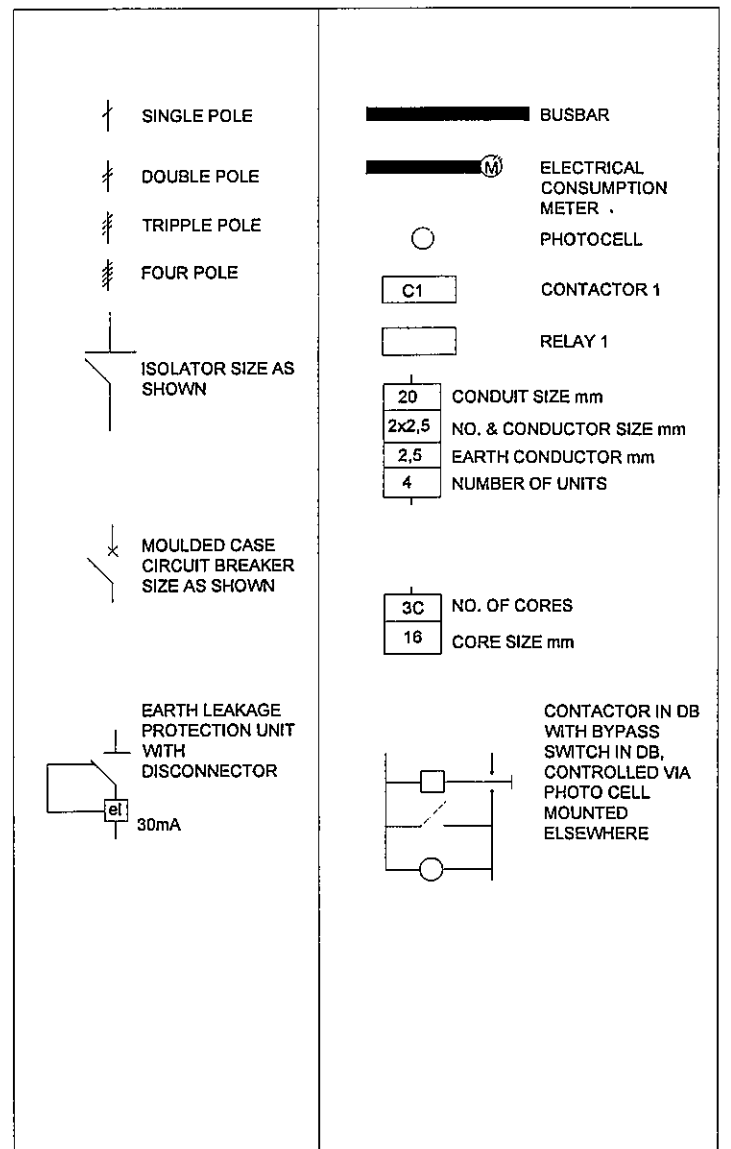
NAME: DB-10 (E)		VOLTAGE: 400/231V				
RATING BUSBAR:		fault: 5kA				
SUPPLY: BOTTOM	☒	TOP	☐	SIDE	☐	
FEEDER: BOTTOM	☒	TOP	☒	SIDE	☐	
MOUNTING:				☐	FLOOR	☐
RECESSED				☒	SURFACE	☐
DOORS: YES	☒	NONE	☐	LOCABLE	☒	
COLOUR: WHITE	☐	RED	☒	CREAM	☐	
ORANGE	☐	GREY	☐	OTHER	☐	
SURGE ARRESTORS		YES	☒			
SPARE SPACE:		30%				
LOCATION: ON THE PASSAGE						



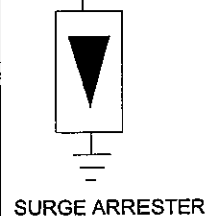
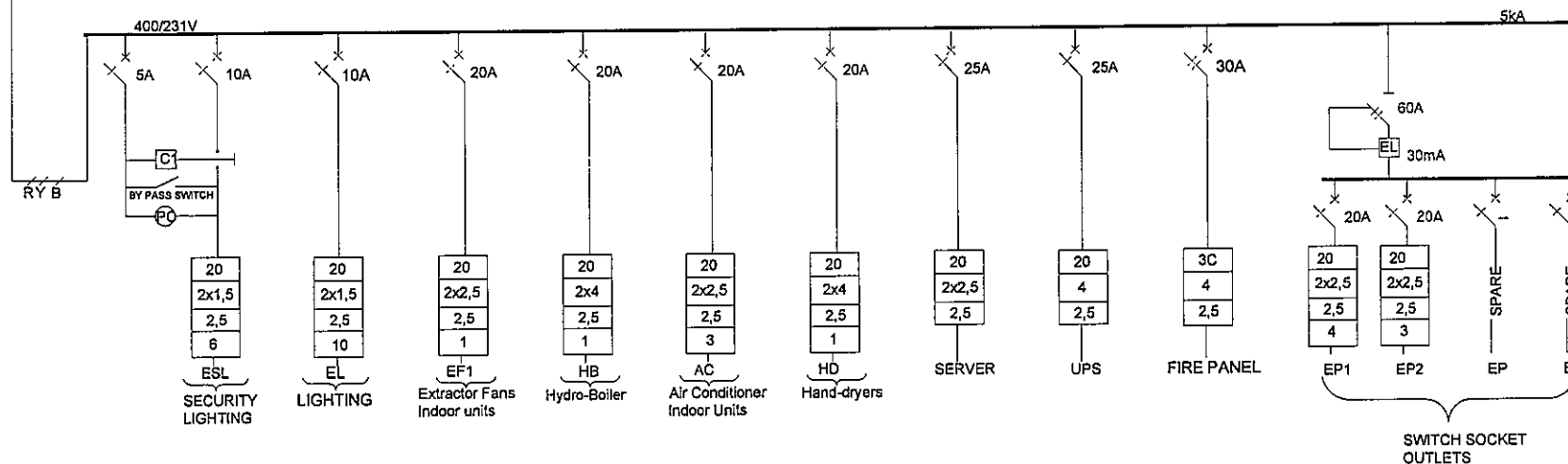
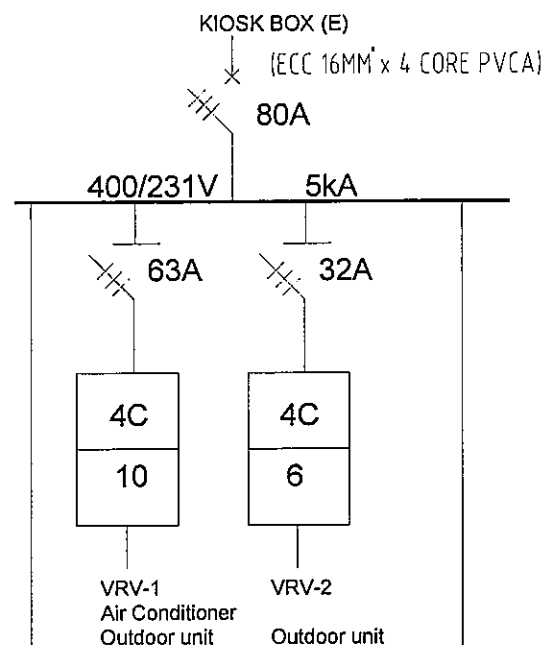
Approved by Department:	Signature:	DATE:	DESIGNED:	DATE:	PROJECT:	FILE NAME:	DRAWING TITLE:	DRAWING NUMBER:	REV NO:	DATE:
DEPARTMENT OF PUBLIC WORKS			BS	SEPTEMBER 2021	DOT HEAD OFFICE UPGRADE: REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C	19PMB/02E	SINGLE LINE DIAGRAM DB-10 SECOND FLOOR EXECUTIVE BLOCK	19PMB/02/6E	0	MARCH 2022



NAME: DB-12 (E)	VOLTAGE: 400/231V		
RATING BUSBAR:	fault: 5kA		
SUPPLY: BOTTOM	☒	TOP ☐	SIDE ☐
FEEDER: BOTTOM	☒	TOP ☒	SIDE ☐
MOUNTING:	☐	FLOOR ☐	
RECESSED	☒	SURFACE ☐	
DOORS: YES	☒	NONE ☐	LOCABLE ☒
COLOUR: WHITE	☐	RED ☒	CREAM ☐
ORANGE	☐	GREY ☐	OTHER ☐
SURGE ARRESTORS	YES	☒	
SPARE SPACE:	30%		
LOCATION:	ON THE PASSAGE		

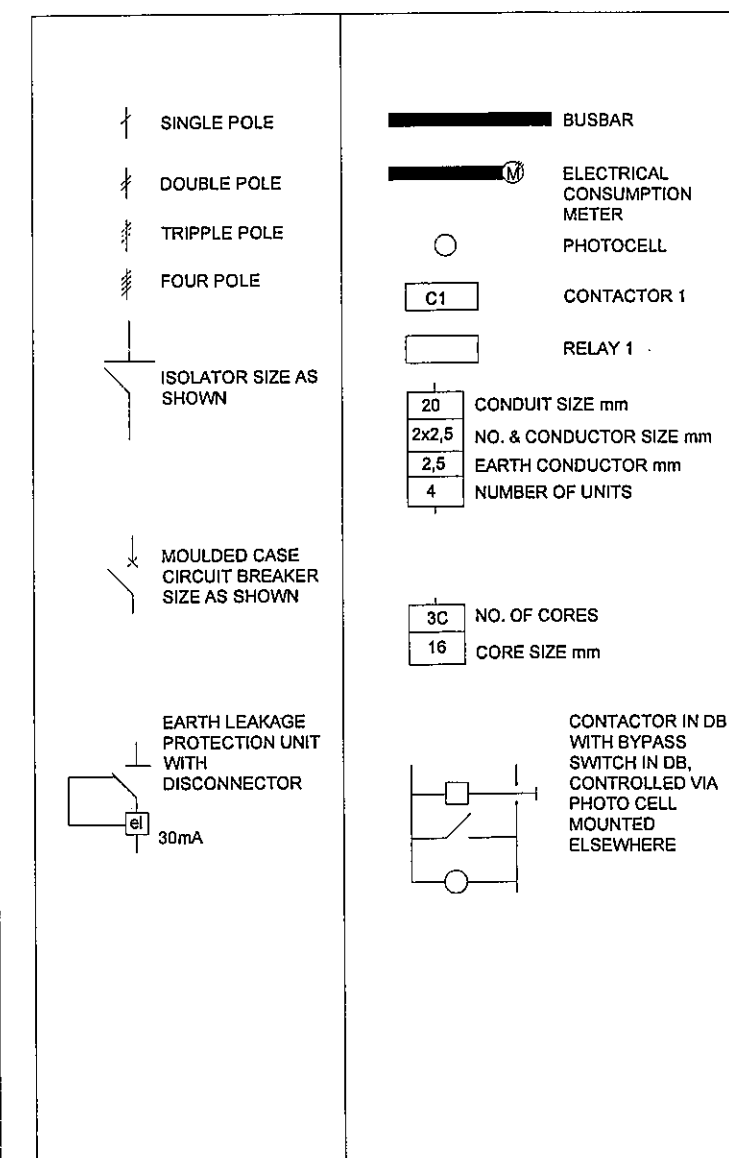


Approved by Department	Signature	Date	SCALE NOT TO SCALE DRAWN B.S	DESIGNED B.S CHECKED M.H.S	DATE SEPTEMBER 2021 DATE SEPTEMBER 2021	PROJECT DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C ELECTRICAL INSTALLATION ESSENTIAL CIRCUITS	FILE NAME 19PMB/02E	DRAWING TITLE SINGLE LINE DIAGRAM DB-12 FOURTH FLOOR EXECUTIVE BLOCK	DRAWING NUMBER 19PMB/02/6E	REV NO 0	DATE MARCH 2022
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TENDER DRAWINGS

NAME: DB-13 (E)		VOLTAGE: 400/231V			
RATING BUSBAR:		fault: 5kA			
SUPPLY: BOTTOM	☒	TOP	☐	SIDE	☐
FEEDER: BOTTOM	☒	TOP	☒	SIDE	☐
MOUNTING:			☐	FLOOR	☐
RECESSED			☒	SURFACE	☐
DOORS: YES	☒	NONE	☐	LOCABLE	☒
COLOUR: WHITE	☐	RED	☒	CREAM	☐
ORANGE	☐	GREY	☐	OTHER	☐
SURGE ARRESTORS		YES	☒		
SPARE SPACE:		30%			
LOCATION: ON THE PASSAGE					



Approved by Department	Signature	Scale	DESIGNED	DATE	PROJECT	FILE NAME	DRAWING TITLE	DRAWING NUMBER	REV NO	DATE
DEPARTMENT OF PUBLIC WORKS		NOT TO SCALE	B.S	SEPTEMBER 2021	DOT HEAD OFFICE UPGRADE, REPAIRS TO EXECUTIVE BLOCK AND BLOCK B ROOF AND ENCLOSING OF GROUND AND 3RD FLOOR VERANDAH AT BLOCK C	19PMB/02E	SINGLE LINE DIAGRAM DB-13 GUAR HOUSE	19PMB/02/6E	0	MARCH 2022
		DRAWN	CHECKED	DATE	ELECTRICAL INSTALLATION					
		B.S	N.M.S	SEPTEMBER 2021	ESSENTIAL CIRCUITS					



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

ANNEXURES



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

MODEL PREAMBLES FOR TRADES 2008



MODEL PREAMBLES FOR TRADES

2008

*forming part of
the bills of quantities*

Project: _____

Contract Reference Number: _____

EXPLANATORY NOTES AND INSTRUCTIONS ON THE USE OF THESE MODEL PREAMBLES

1. The document

- 1.1 This document is published by and is available from the Association of South African Quantity Surveyors, P.O. Box 3527, Halfway House, 1685. Telephone (011) 315 4140. E-mail: administration@asaqs.co.za
- 1.2 The contents of this document are intended to cover workmanship and materials encountered in a significant majority of projects. If a material is not encountered in a significant majority of projects, its preamble will in all likelihood not be included in this document
- 1.3 By its very nature, this document is a "Model" document and one that is designed to act as a basis upon which to build. It is anticipated that it will be supplemented by a "Supplementary Preambles" document included in the text of the bills of quantities that will include, *inter alia*, the following:
 - 1.3.1 supplementary clauses of a general nature that practitioners may deem necessary to cover their own individual requirements,
 - 1.3.2 additional clauses pertaining to specific materials incorporated in a project and not covered by the Model Preambles,
 - 1.3.3 amendments to anything contained in the Model Preambles. A clause has been incorporated in the "General" section of the document stipulating that anything contained in the "Supplementary Preambles" which is at variance to that which is contained in the Model Preambles, will take precedence over the Model Preambles and apply to the works in hand
- 1.4 It is intended that this document will be used by reference only in the text of the bills of quantities and will NOT be bound or reproduced therein

2. The basic philosophy

- 2.1 Wherever possible, reference has been made throughout the preambles to South African National Standards (SANS) to describe materials and methods respectively. It is therefore incumbent on the users of these preambles to have ready access to the relevant Specifications and Codes. Where such Specifications or Codes do not exist, suitable preambles have been compiled
- 2.2 These preambles have been designed to assist in abbreviating descriptions in the text of the bills of quantities and practitioners are encouraged to make use of this facility. e.g. The description of a stormwater catchpit would read:

"Brick stormwater catchpit size internally 600 x 400 x 1 200mm deep to invert fitted with and including a 450 x 300mm x 59kg cast iron grating and frame"
- 2.3 Wherever alternatives exist in respect of materials or workmanship, specific choices have been made in these preambles. Should users require different choices to specific items, these should be referred to in the Supplementary Preambles as outlined in clause 1.3

3. Additional notes in the use of these Model Preambles

3.1 Concrete, Formwork and Reinforcement

The Project Specification embodied in these preambles was compiled in collaboration with the Authors of SANS 1200G, which forms the basis for the Concrete, Formwork and Reinforcement model preambles

Users of these preambles are advised to submit a copy of the Model Preambles to the Engineers involved in a project for their scrutiny. Any amplifications, amendments, etc required by individual Engineers would then be incorporated in the Supplementary Preambles referred to in item 1.3

3.2 Roof Coverings

The roof coverings included in these Model Preambles are limited in their content and therefore any roofing material not included in these Preambles will need to have its full preamble included in the Supplementary Preambles

3.3 Structural Steelwork

The comments made under item 3.1 apply equally to Structural Steelwork

Note that the protective treatment of the structural steel covers only the treatment up to and including the primer (and patching after erection). The finishing coats of paint must be fully described and included either in the "Structural Steelwork" or in the "Paintwork" trade, as the practitioner wishes

MODEL PREAMBLES FOR TRADES

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A. GENERAL

A.1 APPLICATION OF CLAUSES

These Model Preambles for Trades, and any Supplementary Preambles, shall be read in conjunction with and shall form part of the descriptions of items in the bills of quantities

Where descriptions or Supplementary Preambles in the bills of quantities differ from these Model Preambles for Trades, the descriptions or Supplementary Preambles in the bills of quantities shall take precedence. Where supplementary preambles differ from descriptions in the bills of quantities, the descriptions in the bills of quantities shall take precedence

Except where otherwise stated, all preambles contained in any individual Trade Preamble shall apply equally to any work of a similar nature in all other trades

A.2 ABBREVIATIONS

The following abbreviations shall apply:

AASHTO	–	American Association of State Highway and Transportation Officials
AISI	–	American Institute of Steel Industries
BS	–	British Standard
CKS	–	Coordinating Specifications issued by the Central Coordinating Committee under the auspices of the South African Bureau of Standards
CSIR	–	Council for Scientific and Industrial Research
SANS	–	South African National Standards and the number following shall refer to the relevant specification or code of practice as the case may be

A.3 MATERIALS AND WORKMANSHIP

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the Works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site. Work shall be to the approval of the Principal Agent and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions where applicable

A.4 PROPRIETARY PRODUCTS

For the purposes of submission of tenders, rates for items described in the bills of quantities by trade names, catalogue references, etc shall be for the particular type and manufacture specified

The approval of the Principal Agent shall be obtained prior to any substitution and where products or materials etc other than those specified are used, adjustments in the rates will be made if necessary

A.5 ASSEMBLING

Rates for manufactured items shall include assembling complete and handing over in proper working order

A.6 REFERENCES IN DESCRIPTIONS

Any references given in brackets at the end of certain descriptions shall refer to the relevant references on the drawings or schedules

A.7 WATER

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for its intended use

A.8 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

All work shall be executed in accordance with the requirements of SANS 10400

A.9 ACCURACY IN BUILDINGS

The dimensional and positional accuracy of the buildings and their component parts shall comply with Grade II requirements of SANS 10155 unless otherwise stated

A.10 REFERENCES TO OTHER DOCUMENTS

References in these "Model Preambles for Trades" to other documents, including SANS, CKS and BS, shall pertain to the latest edition thereof including all amendments thereto at the date for submission of the tender

B. ALTERATIONS

B.1 ALTERATIONS

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. The Contractor shall 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

The Contractor shall take all precautions necessary to prevent any nuisance from dust whilst carrying out the work

B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC

Materials recovered from the alterations (except where described as to be re-used or to be handed over to the Employer) will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in new work without written permission from the Principal Agent

Materials described as "removed" shall be removed from the site immediately.

Materials described as "handed over to the Employer" shall be carefully dismantled where necessary, neatly stored under cover on the site where directed and protected from damage, until required

Materials described as "set aside for re-use" shall be carefully dismantled where necessary, cleaned, neatly stored under cover and protected from damage until required for re-use. Any damage caused to such materials during removal, storage or refixing shall be made good at the Contractor's expense

B.3 DISPOSAL OF DEBRIS ETC

The Contractor shall be responsible for the removal from the site of all materials, debris and rubbish resulting from the alterations

B.4 MAKING GOOD DAMAGED WORK

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

B.5 FORMING NEW OPENINGS OR ALTERING OPENINGS IN EXISTING WALLS

Where new openings are formed or openings altered in existing walls, the wall above the opening shall be broken out and a new brick, in situ concrete or prestressed concrete lintel inserted, complete with all necessary reinforcement, formwork, turning piece, etc, the jambs and portions of openings as described shall be built up with new brickwork or blockwork properly toothed and bonded to existing, cavities of hollow walls shall be closed where necessary and finishes shall be made good all round and into reveals

B.6 BUILDING UP OPENINGS

Where existing openings are given in number as built up, the existing surfaces all round shall be prepared as necessary, brickwork or blockwork properly toothed and bonded to existing, wedged up to underside of existing lintel and finishes shall be made good on both sides

C. EARTHWORKS

C.1 DEMOLITIONS

C.1.1 Nature and extent

Descriptions of demolitions give a rough guide only as to the scope of the work. Tenderers are therefore advised to visit the site before submitting a tender and to acquaint themselves with the nature and extent of the work to be done and the value of recoverable materials which are not to be re-used or handed over to the Employer. Unless otherwise stated, loose furniture, kitchen and other equipment, apparatus, machinery, etc shall remain the property of the Employer and the removal thereof does not fall within the scope of this Contract

The Contractor shall completely demolish the buildings etc in a careful, skilful, practical and safe manner down to 150mm below ground level

Demolitions shall include breaking up and removing:

all floors and surface beds;

all external screen walls, steps, ramps, aprons, surface water channels, rainwater sumps, gulleys, etc attached to the building to be demolished;

all services, manholes, etc in ground to a point not less than 1m beyond the perimeter of the building including plugging off ends of all remaining pipes, drains, etc, filling in holes where necessary and ramming and levelling to ground level

Where only a portion of a building is to be demolished, it shall be done without damage to the remaining portion of the building. Any such damage shall be made good by the Contractor at his own expense

C.1.2 Notices etc

The Contractor shall, before commencing work, obtain all necessary authorisation for carrying out the work, by whatever means including the use of pneumatic equipment or blasting, give all necessary notices and pay all charges and fees in connection therewith. He shall also comply with all regulations pertaining to rodent extermination and he shall obtain the requisite Rodent Extermination Clearance Certificate and pay all necessary fees. All receipts and certificates shall be left in the safekeeping of the Principal Agent. All the abovementioned charges and fees shall be paid by the Contractor and included in his prices

The Contractor shall give ample notice to the Principal Agent and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electrical or telephone cables, water and sanitary services etc

C.1.3 Loss

After the handing over of the site to the Contractor, the full risk of any loss or damage to buildings to be demolished shall be the responsibility of the Contractor and he shall take such precautions as he deems necessary against such loss or damage

C.1.4 Materials from the demolitions, credit, etc

Materials recovered from the demolitions will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in any new work without written permission from the Principal Agent

C.1.5 Disposal of debris etc

The Contractor shall be responsible for the removal from the site of all materials, rubble, debris and rubbish resulting from the demolitions

C.2 SOIL INSECTICIDES

The application of soil insecticides shall be carried out in accordance with "The application of soil insecticides for the protection of buildings" - SANS 10124

C.3 FILLING ETC

C.3.1 Filling generally

Filling over site shall be spread, levelled, watered and consolidated in layers not exceeding 300mm

Filling under floors and backfilling to excavations shall be suitable inert material, free from clay, vegetable matter, large stones, etc, having a maximum plasticity index of 10, spread, levelled and compacted to a density of at least 90% Mod. AASHTO

C.3.2 Hardcore

Hardcore shall be broken stone or other approved hard material graded from 25mm to 75mm with the finer material on top and shall be spread, levelled and consolidated

C.4 EXCAVATIONS

C.4.1 Classification of excavated material

"Hard rock" shall mean granite, quartzitic sandstone or other rock of similar hardness, the removal of which requires drilling, wedging and splitting or the use of explosives

"Soft rock" shall mean hard material the removal of which warrants the use of pneumatic tools and includes hard shale, ferricite, compact outcrop and material of similar hardness

"Earth" shall mean all ground other than that classified as "hard rock" or "soft rock" and shall include made-up ground and any loose stones or pieces of concrete not exceeding 0,03m³ in volume

D. CONCRETE, FORMWORK AND REINFORCEMENT

D.1 SPECIFICATION FOR CONCRETE WORK GENERALLY

All in situ concrete work (plain and reinforced) shall comply with SANS 1200G supplemented by the following Project Specification. Where SANS 1200G and the Project Specification are in conflict, the Project Specification shall take precedence

Wherever the term "Engineer" appears in SANS 1200G or in the following Project Specification this shall be deemed to mean the Principal Agent's representative responsible for this section of the Works

PROJECT SPECIFICATION

The following amplifications, additions and amendments to SANS 1200G shall constitute the Project Specification. Clause numbers refer to either the existing clauses in SANS 1200G or to new clauses, which are related to the existing clauses

1. SCOPE

This clause is amended to include:

- 1.1 This specification does not cover the methods by which the finished structure is to be measured for the purpose of payment and the "Standard System of Measuring Building Work" shall apply

2. INTERPRETATIONS

2.1 SUPPORTING SPECIFICATIONS

Clause 2.1(b) shall not apply

2.2 APPLICATION

This clause shall not apply

4. PLANT

4.5 FORMWORK

4.5.2 Finish

Unless otherwise stated the quality of all formwork shall be such that the finished surface of the concrete is "Rough" in terms of clause 5.2.1(a)

5. CONSTRUCTION

5.2 FORMWORK

5.2.1 Classification of Finishes

- (a) **Rough.** No treatment of the surface of the concrete will be required after the striking of the formwork. The finish of the concrete need not be more accurate than Degree of Accuracy III
- (b) **Smooth.** Imperfections such as small fins, bulges, irregularities, surface honeycombing and surface discolorations shall be made good and repaired by approved methods. The finish of the concrete shall be accurate to Degree of Accuracy II
- (c) **Special**
 - (i) **Smooth and fair**

This class of finish requires the highest standard of concrete work, formwork, accuracy and technique

Concrete placed in any one structure to give this finish shall be made from cement and aggregates from the same source. The grading of the aggregate shall be kept constant

Formwork shall be metal, wrot timber or other approved material in new condition designed and constructed to suit the particular job in hand and with shutter bolts and joints between panels in a regular pattern approved by the Principal Agent. Joints between panels shall be watertight, but the use of sealing tape which will mark the concrete shall not be permitted

Designated joints shall be in the position and of the details shown upon the working drawings. Should the Contractor wish to incorporate further construction joints or amend the position of those shown to suit his own requirements or technique, this may be allowed provided that all design considerations are met, that the prior approval of the Engineer is obtained and that any extra costs are borne by the Contractor

In the case of horizontal construction joints, the top edge of the concrete on the smooth and fair finished side shall be struck true and level with a trowel

Special care shall be taken to ensure that forms are clean and free of all pieces of tying wire, nails and other debris at the time of concreting

The standard of finish shall be such that upon removal of the formwork, no further treatment, other than treatment of bolt holes if required, shall be found necessary to provide a straight, smooth and uniform finish of good quality and consistent colour and texture, free of all honeycombing etc. Any defect shall be made good by either removing and replacing the defective concrete or, in certain instances only, by patching

5.5 CONCRETE

5.5.1.6 Prescribed mix concrete

Where prescribed mix concrete is specified the proportions of constituents, the maximum size of coarse aggregate and the estimated minimum compressive strength shall be as specified in the following table:

Class of Concrete	Estimated minimum compressive strength in MPa at 28 days	Maximum nominal size of coarse aggregate in mm	Proportions of Constituents		
			Cement (Parts)	Fine aggregate (Parts)	Coarse aggregate (Parts)
A	7	37,5	1	4	8
B	15	19	1	3	5
C	20	19	1	2,5	3,5

Cement shall comply with SANS 50917-1 of strength 32,5N or higher

Should cement and aggregates be mixed by volume, the contents of a 50kg sack of cement shall be taken to be 0,033m³

Notwithstanding the requirements contained in SANS 1200G, the Principal Agent may permit certain items of non-structural concrete to be mixed by hand

If the concrete is mixed by hand, it shall first be mixed in a dry state on a clean non-absorbent surface until it is of uniform colour and consistency. Just enough water shall then be added to permit mixing and working, at which stage the concrete shall continue to be mixed until it is of uniform colour and consistency

5.5.1.7 Strength concrete

Where strength concrete is specified it shall be designated by its specified strength followed by the size of stone used in its manufacture, eg 30 MPa/19mm

The water/cement ratio shall be as Table 5 of clause 5.5.1.5 for moderate exposure conditions

5.5.1.8 "No-Fines" concrete

"No-fines" concrete shall consist of one part cement to eight parts aggregate graded from minimum 6mm to maximum 13mm size

The quantity of water used shall be just sufficient to form a smooth grout which shall completely coat every particle of aggregate and also to ensure that the grout is just wet enough to form a small fillet at each point of contact between the stones. "No-fines" concrete mixed with excessive water, which results in a thin grout, which drops off the aggregate, will be rejected

"No-fines" concrete shall be placed in its final position within 20 minutes of mixing and shall be placed in continuous horizontal layers. Concrete shall be spade worked sufficiently to ensure that it fills the forms but vibrating, tamping or ramming will not be permitted

5.5.3.2 Ready-mixed concrete

The use of ready-mixed concrete and the acceptability of test results from a central concrete production facility shall be subject to the written approval of the Engineer

6. TOLERANCES

Degree of Accuracy II shall apply for all work unless otherwise stated

7. TESTS

7.1 FACILITIES AND FREQUENCY OF SAMPLING

7.1.2 Frequency of sampling

7.1.2.5 The frequency of sampling shall be as directed by the Engineer, but not less than one set of cubes from every 50m³ cast

8. MEASUREMENT AND PAYMENT

This clause shall not apply

D.2 AGGREGATES OF LOW DENSITY

Aggregates of low density shall comply with SANS 794

D.3 HOLLOW BLOCKS, PREFABRICATED BLOCK BEAMS AND PLANKS, ETC

Blocks, block beams, planks, etc shall be fixed and supported in such a manner that no movement can take place before or during the casting of concrete. No broken components shall be used

D.4 SUPERVISION

A competent and experienced foreman shall superintend personally the whole of the concrete construction and pay special attention to:

- (a) The quality, testing and mixing of materials,
- (b) The placing and compaction of concrete,
- (c) The construction and removal of formwork and
- (d) The sizes and position of reinforcement

The Contractor shall obtain the permission of the Principal Agent before commencing concreting of foundations or reinforced structure

No inspection, approval, authorisation to proceed, comment or instructions following from such an inspection, or failure of the Principal Agent to comment on any particular aspect of the work, shall be deemed to relieve the Contractor in any way from his obligation to ensure through his own supervision that the work is constructed in every way in accordance with the Drawings, Specification and Conditions of Contract, nor relieve him from his obligations to make good any fault or defect, nor shall it be deemed that there is any obligation on the Principal Agent to inspect all or any part of the Works or that such inspection is necessarily complete in every respect

D.5 GENERAL

Concrete

Rates for concrete work shall include all "construction joints" other than "designated joints" as defined in SANS 1200G clause 2.4.3 which are measured separately, and for the design of strength concrete mixes and all testing of concrete and materials other than compressive strength testing of concrete samples taken from concrete being placed in the Works. The Contractor shall only be entitled to payment for those samples and compressive strength tests called for by the Engineer and which pass the test requirements

Surface beds cast in panels shall be cast in panels approximately 9m²

Formwork

Formwork to slabs and beams shall be cambered where required

Rates for formwork to soffits shall include propping not exceeding 3,5m high unless otherwise described.
Formwork to walls and columns is not exceeding 3,5m high above bearing level unless otherwise described

Reinforcement

Standard welded steel fabric reinforcement shall be as included in Table 1 of SANS 1024 and shall have 300mm wide laps.

The mass of binding wire is not included in the mass of the reinforcement and the cost thereof shall be included in the rates for the reinforcement

E. PRECAST CONCRETE

E.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Precast concrete paving slabs SANS 541

Cement, water, aggregates and reinforcement shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT

E.2 CONCRETE

Concrete shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT and unless otherwise stated shall be prescribed mix concrete Class C but with coarse aggregate of an appropriate size

E.3 MOULDS

Before each casting, moulds shall be coated with a suitable release agent which will not in any way discolour the surface of the finished product or impair its strength. Where items are described as "finished smooth from the mould" or as "precast terrazzo", moulds shall be made to a high degree of accuracy and shall be such as to leave even and smooth surfaces

E.4 FINISHES TO BLOCKS

Where described as "precast terrazzo", such surfaces shall have a facing of terrazzo described under O. PLASTERING. The facing shall be poured into the moulds in a wet state (not dry pressed) and thoroughly worked up against finished faces to ensure that it finishes smooth from the mould

Projections shall be rubbed off and faces shall be of even colour and free from blemishes, cracks and other imperfections. Salient angles shall be arris rounded

E.5 CASTING ETC

Items shall be suitably cured, shall not be handled whilst still green and shall not be built in within 21 days of casting

E.6 REINFORCEMENT

Unspecified reinforcement required for manufacturing, handling and erection purposes and for reinforcing projecting and other unwieldy portions of blocks shall be provided by the Contractor at his discretion

E.7 BEDDING, JOINTING AND POINTING

Blocks shall be bedded and jointed solidly in Class I mortar as described under F. MASONRY and shall be pointed with slightly keyed joints

Blocks finished with "precast terrazzo" shall have joints raked out and pointed with slightly keyed joints in tinted waterproofed mortar composed of one part cement and three parts sand to match terrazzo facing

E.8 GENERAL

Precast concrete work shall include reinforcement required for manufacturing, handling and erection purposes, steel rod or wire hooks and/or mortices for lewis bolts required for handling and transporting, any necessary temporary propping and strutting and bedding, jointing and pointing

F. MASONRY

F.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Burnt clay masonry units	SANS 227
Limes for use in building	SANS 523 (Slaked (hydrated) limes)
Aggregates from natural sources – fine aggregates for plaster and mortar	SANS 1090
Concrete masonry units	SANS 1215
Prestressed concrete lintels	SANS 1504
Burnt clay paving units	SANS 1575
Metal ties for cavity walls	SANS 28
Common cement	SANS 50197-1 (Class 32,5N)
Masonry cement	SANS 50413-1 (Class 22,5X)
Concrete masonry construction	SANS 10145
The structural use of masonry	SANS 10164-1
Masonry walling	SANS 10249
Concrete floors	SANS 10109-1&2

F.2 SAND

Sand shall be washed where necessary and screened through a 2,4mm mesh sieve

F.3 BURNT CLAY BRICKS

Burnt clay bricks shall be of nominal size 222 x 106 x 73mm unless otherwise stated

Common bricks shall be General Purpose bricks

Extra hard burnt bricks shall be General Purpose (Special) bricks

Facing bricks shall exhibit a liability to efflorescence not in excess of "Slight" and water absorption when tested in conformity with the requirements of SANS 227 shall not exceed 14%

Particular care shall be taken to preserve arrisses and faces of facing and paving bricks during transit and handling

F.4 CONCRETE BRICKS

Concrete bricks shall have a nominal compressive strength of 8 MPa

F.5 QUARRY TILES ETC

Quarry, cement and similar tiles shall be of approved manufacture, even in shape and size, free from cracks, twists or blemishes and uniform in colour

F.6 WIRE TIES

Wire ties shall be of galvanized steel of the single wire type for solid walls and either the "Butterfly" or Modified PWD type for hollow walls. Ties shall be of sufficient length to allow not less than 75mm of each end to be built into brickwork or embedded in concrete

F.7 BRICKWORK REINFORCEMENT

Brickwork reinforcement shall be manufactured from hard drawn steel wire conforming to BS 785 and shall consist of two 2,8mm diameter main wires with 2,5mm diameter cross wires at 300mm centres welded at intersections

Brickwork reinforcement shall be lapped not less than 300mm at end joints and for a length equal to the width of the widest reinforcement at intersections

F.8 MORTAR

Mortar shall comply with the following table:

1	2	3	4
Mortar Class	Minimum compressive strength MPa	Cement:sand (common cement)	Cement:sand (masonry cement)
I	10	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	5	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1,5	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

Mortar shall be Class II unless otherwise specified

Mortar plasticizers may only be used with the approval of the Principal Agent

The materials shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated

Mortar shall be produced in such quantities as can be used before commencement of set and no mortar that has set shall be used

F.9 COMPO MORTAR

Compo mortar shall be Class III mortar in accordance with clause F.8 but with a lime content of 80 litres

The lime and sand shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated. Immediately before use, the cement shall be mixed in and the requisite amount of water added. Compo mortar shall be produced in such quantities as can be used before commencement of set and no compo mortar that has set shall be used

F.10 BRICKWORK

Wherever practicable, brickwork shall be built in stretcher bond. Unless legitimately required to form bond, no false headers shall be used. English bond shall only be used where specifically so indicated or where stretcher bond is not practicable

Brickwork, unless otherwise described, shall be built in Class II mortar

Bricks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

The brickwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Where necessary, bricks shall be wetted before being laid and the course of bricks last laid shall be well wetted before laying a fresh course upon it

Walls in thicknesses of more than one skin shall have at least five wire ties per square metre. Linings to concrete, unless otherwise specified, shall be tied to the concrete with at least five wire ties per square metre

Hollow walls, unless otherwise specified, shall be built of two half brick skins with cavity between, tied together with at least five wire ties per square metre. The cavities shall be kept free of all rubbish, mortar droppings and projecting mortar. Mortar joints to brickwork shall be not less than 8mm or more than 12mm thick

F.11 BLOCKWORK

Unless otherwise described, all blockwork shall be built in stretcher bond. Whole blocks shall be used except where bats or closers are required to form bond. Blockwork, unless otherwise described, shall be built in Class II mortar

Solid blocks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

Hollow blocks shall be laid in shell bedding, ie only the inner and outer shells of the blocks shall be covered with mortar. Vertical joints shall be similarly formed

The blockwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Clay blocks shall be wetted before being laid and the course of blocks last laid shall be well wetted before laying a fresh course upon it

F.12 CENTRES AND TURNING PIECES

Centres and turning pieces to soffits of arches and lintels shall be left in position for not less than 14 days

F.13 FACE BRICKWORK

Face brickwork shall be built in stretcher bond, unless otherwise specified, to a true and fair face. Perpendents shall be vertically aligned

Facing bricks shall be mixed to ensure that the proper blending of bricks within the colour range of each facing brick being used is obtained

F.14 PAVINGS, SILLS, COPINGS, ETC

Clay bricks and tiles shall be wetted before fixing and shall be solidly bedded and jointed in Class I mortar and pointed with slightly keyed joints

G. WATERPROOFING

G.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Bituminous damp-proof courses	SANS 248 (Type FV)
Polyolefin film for damp- and waterproofing in buildings (walls, sills, etc)	SANS 952 (Type B)
Polyolefin film for damp- and waterproofing in buildings (floors and basements)	SANS 952 (Type C)
Mastic asphalt for roofing	SANS 297
Mastic asphalt for damp-proof courses and tanking	SANS 298
Bituminous roofing felt	SANS 92 (Type 60)
Polyolefin film for damp- and waterproofing in buildings (flat roofs)	SANS 952 (Type A)
Chloroprene rubber sheet (for waterproofing)	SANS 580
Sealing compounds for the building industry, two-component, polysulphide base	SANS 110 (Type 2 - Gun Grade)
Sealing compounds for the building and construction industry, two- component, polyurethane base	SANS 1077
The waterproofing of buildings (including damp-proofing and vapour barrier installation)	SANS 10021

G.2 WATERPROOFING TO ROOFS, BASEMENTS, ETC

Waterproofing to roofs, basements, etc shall be carried out by workmen who are experienced in this type of work

G.3 DAMP-PROOF COURSE TO WALLS

All joints in damp-proof course to walls shall be lapped a minimum of 150mm except at junctions and corners where the lap shall equal the full thickness of the wall

H. ROOF COVERINGS ETC

H.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Concrete roofing tiles	SANS 542
Clay roofing tiles	SANS 632
Sawn softwood timber battens	SANS 1783-4
Fibre-cement sheets (flat and profiled)	SANS 685
Aluminium alloy corrugated and troughed sheets	SANS 903
Continuous hot-dip zinc-coated carbon steel sheet of commercial, lock-forming and drawing qualities	SANS 3575
Continuous hot-dip zinc-coated carbon steel sheet of structural quality	SANS 4998
Polyolefin film for damp- and waterproofing in buildings	SANS 952
Metal roofing tiles	SANS 1022
Glass-reinforced polyester (GRP) laminated sheets (profiled or flat)	SANS 1150
Fasteners for roof and wall coverings in the form of sheeting	SANS 1273
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Fixing of concrete interlocking roofing tiles	SANS 10062
Roof and side cladding	SANS 10237
Sheet zinc	BS 849
Sheet lead	BS 1178
Sheet aluminium	BS 1470
Sheet copper	BS 2870

H.2 GALVANIZED STEEL PROFILED SHEETS ETC

Galvanized steel profiled sheets, ridge and hip coverings, etc shall be coated with a minimum of 275 g zinc per m² and shall be free of white rust

H.3 GALVANIZED SHEET IRON

Galvanized sheet iron shall be rolled steel sheet coated on both sides with a minimum of 275 g of zinc per m² and shall be free from white rust

H.4 NAILING AND SCREWING

Where nailing and screwing is required:

- galvanized iron nails and screws shall be used for galvanized sheet iron and sheet zinc
- copper or copper alloy nails and screws for sheet copper and sheet lead
- aluminium alloy or stainless steel nails and screws for sheet aluminium

H.5 LAPS

Sheet metal flashings shall have minimum 100mm laps and linings to valleys, secret gutters, etc minimum 225mm laps

H.6 GENERAL

Rates for profiled sheet roofing and rolled edges, ridge and hip coverings, flashing pieces, etc of metal, fibre-cement, plastic, etc shall include fixing accessories

I. CARPENTRY AND JOINERY

I.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sawn softwood timber : General requirements	SANS 1783-1
Sawn softwood timber : Stress-graded structural timber and timber for frame wall construction	SANS 1783-2
Sawn softwood timber : Branderling and battens	SANS 1783-4
Softwood flooring boards	SANS 629
Hardwood furniture timber	SANS 1099
Hardwood block and strip flooring	SANS 281
Wooden ceiling and panelling boards	SANS 1039
Laminated timber (glulam)	SANS 1460
Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Wood-wool panels (cement bonded)	SANS 637
Fibre-cement sheets (flat and profiled)	SANS 685
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Particle boards	SANS 50312-1to7
Decorative laminates	SANS 4586
Wooden doors	SANS 545
Fire doors	SANS 1253
Materials for thermal insulation of buildings	SANS 1381-1,2,4&6
Expanded polystyrene thermal insulation boards	SANS 1508
Mild steel nails	SANS 820
Metal screws for wood	SANS 1171
Wood-preserving creosote	SANS 539

Softwood shall bear the relevant SABS mark and shall be ordered in the sizes in which it will be used as no scantlings of marked timber will be allowed. Should SABS marked timber be unavailable, the Principal Agent's prior permission shall be obtained before using unmarked timber

I.2 HARDWOODS

All hardwoods shall be specially selected, well seasoned, free from sapwood and well kiln dried. Meranti shall be Red or Medium Brown Meranti, even in grain and colour, selected from "Standard and Better" quality from Malaysia

I.3 INFECTION AND PRE-TREATMENT OF TIMBER

All timber used on the site, whether for permanent or temporary work, shall be free of borer or other beetle and termite infection. If the work under this contract falls within an area designated under Government Notice R2577 of 197812-29, permanent softwood fixed in the building shall be treated against borer etc in accordance with Government Notice R451 of 1969-03-28 using Class B or C preservative

When treated timbers are cut, the cut surfaces shall be effectively brushed with at least two coats of preservative solution

I.4 CONSTRUCTION IN GENERAL

Where applicable, construction methods shall comply with SANS 10082. Wood and laminate flooring shall be installed in accordance with SANS 10043. Roof trusses shall be manufactured, erected and braced in accordance with SANS 10243

I.5 STRUCTURAL TIMBER

Timbers generally shall be in single lengths and jointing of timbers will only be permitted when the required length is unobtainable. Only the absolute minimum of joints to obtain a particular length will be permitted and such joints are to be evenly spaced along the length of the timber

Finger-jointing of structural timber will be permitted, in which case it shall be manufactured in accordance with SANS 10096

I.6 PLATE NAILED TIMBER ROOF TRUSSES

Plate nailed timber roof trusses shall be of approved design and manufacture and constructed with softwood structural timber by a truss Fabricator holding a current Certificate of Competence awarded by the Institute of Timber Construction

Each roof truss shall have all its members accurately cut and closely butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, precision pressed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions

The design, manufacture and transportation of the roof trusses, bracing, etc shall be under the control of a registered Structural Engineer in accordance with SANS 1900, SANS 10160 and SANS 10163, who shall, after erection, provide a certificate confirming that the design, manufacture, transportation, erection and bracing has been carried out in accordance with this specification

The design shall include for all live loads, wind loads and for dead loads imposed by roof covering, purlins, ceilings, etc

Fully detailed shop drawings of all trusses etc, indicating sizes, bracing, loading, etc, shall be submitted to the Principal Agent for approval prior to fabrication

Unless specific erection instructions are given, erection shall be carried out in accordance with the procedures and recommendations of the manual "The Erection and Bracing of Timber Roof Trusses" published by the Institute for Timber Construction and the Council for Scientific and Industrial Research or as detailed by the designer

Roof trusses and bracing shall include design and preparation of shop drawings

I.7 TONGUED AND GROOVED BOARDING

Tongued and grooved boards for floors, panelling, etc shall be in long varying lengths with joints tightly cramped up and secret nailed. Flooring boarding shall be flush jointed with staggered heading joints and machine sanded after fixing

I.8 JOINERY

Skirtings, cornices, rails, etc shall be in single lengths wherever practicable and shall have splayed heading joints where necessary. Skirtings shall be trenched at back

All horns of door frames shall be checked and splayed back where frames are fixed projecting or flush with surface and built in

Heads of screws in exposed faces of hardwood joinery shall be sunk and match pelleted

Joinery shall have arris rounded angles and shall be blocked and planted on

I.9 VENEERS

All face veneers shall be of kiln dried timber, free from knots, cracks, patchwork, sapwood and other defects, selected and glued, dried and machine-sanded to a smooth finish. All veneers shall be applied under hydraulic pressure

I.10 DOORS

Flush doors shall have solid timber edge strips with concealed edges. Where doors are to be finished with a transparent finish, the veneer and the edge strips shall be timber of the same species and as far as possible of matching colour. Unless otherwise described all flush doors shall be of interior quality, but where exterior quality doors are specified the glue used shall be of the WBP type

Framed and ledged batten doors described as filled in with V-jointed boarding shall be filled in flush on one side with tongued and grooved vertical boarding, V-jointed on one or both sides and of the thickness stated. The boarding shall be in narrow widths, closely cramped up, rebated or tongued on outer edges and housed to grooves in stiles and rails and twice countersunk brass screwed at each intersection with ledges and braces and the inner edges of the abutting stiles and rails shall be chamfered to form a V-joint at junction with the board

Unless otherwise described double doors shall have rebated meeting stiles

I.11 FIXING

All nails and screws shall be of the size, length and type appropriate to their respective uses. All screws for hardwood joinery work shall be brass

Items described as "plugged" shall be screwed to fibre, plastic or metal plugs at not exceeding 600mm centres. Where items are described as "bolted", the bolts have been given separately

I.12 ADHESIVES

Adhesives shall comply with BS 1204 and 4071 where applicable. Adhesives used in the manufacture of external joinery exposed to excessive moisture (eg kitchen and laboratory worktops) shall be of the WBP type

J. CEILINGS, PARTITIONS AND ACCESS FLOORING

J.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Gypsum cove cornice	SANS 622
Wood-wool panels (cement-bonded)	SANS 637
Sawn softwood timber : Brandering and battens	SANS 1783-4
Sawn softwood timber : Timber for frame wall Construction	SANS 1783-2
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Raised access flooring	SANS 1549

J.2 TONGUED AND GROOVED BOARDING

Tongued and grooved boarding for ceilings shall be in long varying lengths, V-jointed one side and with joints tightly cramped up and secret nailed

J.3 CEILINGS ETC

J.3.1 Brandering

Brandering for ceilings and eaves soffit coverings shall be symmetrically arranged with necessary smaller panels. Main branders shall be at right angles to roof timbers, with cross branders cut in between and branders shall be fixed with galvanized wire nails driven in on skew alternately in opposite directions

J.3.2 Ceiling boards

Ceiling boards shall be in long lengths symmetrically arranged with necessary smaller panels, closely butted and secured at 150mm centres to brandering with galvanized or cadmium-plated clout-headed nails

J.4 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

J.5 EXPOSED TEE-SYSTEM SUSPENDED CEILINGS

The ceiling panels shall be as described in the items and the panels shall be stiffened at back as recommended by the manufacturer to prevent bowing or sagging

The exposed surfaces of all ceiling panels and supporting members shall be uniform in colour and free from surface blemishes

The suspension grid system shall be an approved patent suspension system comprising 38mm galvanized steel main and cross tee bearers spaced in both directions at centres to suit sizes of ceiling panels used, with the cross bearers fitted between and notched to form flush fit with main bearers. The exposed flange of the tees shall be 25mm wide, covered with a rolled aluminium cap painted a low sheen satin white. Cornices etc shall be as described in the items and shall be finished to match the exposed tees

The main tee bearers shall have holes for cross tees at 300mm centres and holes for hangers at 50mm centres. In addition, main and cross tee bearers shall be holed as necessary for and provided with timber wedges or steel clips where recommended by the manufacturer to prevent ceiling panels from lifting

The web of the exposed cross tee bearers shall extend to form a positive interlock with the main tee bearers and the lower flange shall be cut back to provide a joint free appearance

All hangers shall be galvanized and shall be at centres to meet the requirements of the specification with one end fixed to the suspension grid main bearers and the other end fitted with suitable galvanized fixing cleat securely fixed to the structure. Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducts. Where recommended by the manufacturer, hangers shall be of the rigid type

Component parts and fixings shall be non-corrosive and able to withstand atmospheric pollution. Surfaces of aluminium which are in contact with other materials when fixed, particularly metals, shall be suitably insulated to prevent electrolytic corrosion

Ceilings shall comprise hangers, suspension grid system and ceiling panels, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension systems modified as necessary to work around any pipes or light fittings

J.6 FLUSH PLASTERED SUSPENDED CEILINGS

Gypsum plasterboard panels of the specified thickness generally in 1200mm widths and in long lengths shall be fixed grey side down with self-tapping screws to the suspension system with the joints between boards loosely butt jointed and covered with 50mm wide strips of self-adhesive fibre tape

The plasterboard panels shall be finished with gypsum skim plaster trowelled to a smooth polished surface to the thickness etc recommended by the manufacturer

The suspension system shall be an approved patent concealed suspension system consisting of galvanized mild steel bearers suspended on approved non-rusting metal hangers spaced generally at 1200mm centres or to suit layout of air-conditioning ducts and other services etc above ceiling with one end bolted to the bearer and the other end fitted with a galvanized fixing cleat securely fixed to the structure as required

Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducting

Ceilings shall comprise hangers, suspension system, ceiling panels and plaster finish, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension system modified as necessary to work around any pipes or light fittings

K. FLOOR COVERINGS, WALL LININGS, ETC

K.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Semi-flexible vinyl floor tiles	SANS 581
Resin modified vinyl floor tiles	SANS 586
Flexible vinyl flooring	SANS 786
Hardwood block and strip flooring	SANS 281
Wood mosaic flooring	SANS 978
Textile floor coverings (pile construction)	SANS 1375
Textile floor coverings (needle-punched construction)	SANS 141
Carpet underlays	SANS 1419
The installation of wood and laminate flooring	SANS 10043
The installation of resilient thermoplastic and similar flexible floor covering materials	SANS 10070
The installation of textile floor coverings	SANS 10186
Sheet linoleum (calendered types), cork, carpet and linoleum tiles	BS 810
Solid rubber flooring	BS 1711
Felt backed linoleum	BS 1863

K.2 LAYING OF MATERIAL

Floor tiles shall be laid with continuous joints in both directions

Patterned floor coverings shall be matched at joints

K.3 GENERAL

Floor coverings, wall linings, skirtings, nosings, etc shall include all preparatory work to screeded or plastered surfaces etc, priming coats and adhesives

Floor coverings and wall linings shall be dressed around and into corners. Wood block and wood mosaic flooring shall be sanded with a sanding machine and sealed with a coat of approved penetrating sealer

Plastic handrails shall have welded and polished butt joints

L. IRONMONGERY

L.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Locks, latches and associated furniture for doors. (Domestic type)	SANS 4
Kitchen cupboards: Built-in and free-standing	SANS 1385
Single action closers	SANS 1510
Padlocks	SANS 1533
Fasteners	SANS 1700
Chalk writing boards for schools	CKS 36

L.2 KEYS

Locks shall have the minimum possible number of interchangeable keys. Cylinder locks and locks described as "en suite" shall be clearly marked with consecutive numbers and each key shall be punched with the corresponding number of the relative lock

L.3 FIXING

Unless otherwise described, ironmongery is to be fixed to wood

Items described as "plugged" shall be screwed to fibre, plastic or metal plugs

Screws, bolts, etc for fixing of ironmongery shall be of matching metal and finish, except for aluminium ironmongery or ironmongery fixed to aluminium in which cases stainless steel screws may be used

All necessary preparation of pressed steel door frames for the fixing of ironmongery to the frames has been included with the pressed steel door frames

L.4 KITCHEN CUPBOARDS

Steel cupboards shall be finished with baked enamel. Tops of floor cupboards shall have laminated plastic covering

Cupboards shall be fitted with all necessary hinges, handles, catches, etc. Cupboards shall be securely fixed with all necessary screws and fibre, plastic or metal plugs

Where cupboards are described as a "series", tops shall be continuous and cupboards shall be bolted or screwed together, including bolts, screws, holes, etc

M. STRUCTURAL STEELWORK

M.1 SPECIFICATION

All structural steelwork shall comply with SANS 1200H or 1200HA as applicable. Structural fasteners shall comply with SANS 1700

Whenever the term "Engineer" appears in SANS 1200H or 1200HA or in the following Project Specification this shall be deemed to mean the Principal Agent's representative responsible for this section of the Works

M.2 PROJECT SPECIFICATION INCORPORATING AMPLIFICATIONS, ADDITIONS AND AMENDMENTS TO SANS 1200H AND 1200HA

The following amplifications, additions and amendments to SANS 1200H and SANS 1200HA shall apply and clause numbers refer to either the existing clauses in the relevant SANS or to new clauses which are related to the clauses therein

SANS 1200H

3.1.1 Weldable structural steel

Weldable structural steel shall comply with SANS 1431

5.1.2 Contractor provides shop details

The Contractor shall be responsible for the preparation of all shop detail drawings

5.1.3 Engineer provides shop details

This clause shall not apply

5.3.9 Protective treatment

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

8. Measurement and payment

This clause shall not apply

SANS 1200HA

5.2.10 Protective treatment

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

5.3.7 Repairs to paint and site painting

This clause shall not apply

8. Measurement and payment

This clause shall not apply

N. METALWORK

N.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Fasteners	SANS 1700
Expanded metal	SANS 190-1&2
Windows and doors made of rolled mild steel sections	SANS 727
Hot-dip galvanized zinc coatings on fabricated iron and steel articles	SANS 121
Strongroom and vault doors	SANS 949
Anodized coatings on aluminium (for architectural applications)	SANS 999
Steel door frames	SANS 1129
Mushroom- and countersunk-head bolts and nuts	SANS 1143
Welding of metalwork	SANS 1044
Adjustable glass-louvred windows	CKS 413
Aluminium sheet and strips	BS 1470
Aluminium extruded tube and hollow sections	BS 1474
Aluminium bars and sections	BS 1476

N.2 STEEL

Steel shall be mild steel of approved commercial quality. Steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and given one coat of primer as specified before leaving the workshop

N.2.1 Galvanizing of steel

Steelwork described as "galvanized" shall be galvanized by means of the hot-dip process after fabrication. Where welding on site is unavoidable, such welded joints shall be cleaned down and cold galvanized to approval

N.3 STAINLESS STEEL

Stainless steel shall be AISI Type 304 stainless steel and shall be buffed to an even satin finish. Stainless steel screws shall be used for fixing stainless steel

N.4 ALUMINIUM

Aluminium extrusions shall be of 6063-T6 alloy and temper. Aluminium sheet and strips shall be of 1200-H4 alloy and temper.

Joints in all aluminium members shall be formed in an approved manner so that the joints are practically invisible. Screw heads, pins, rivets, etc shall be concealed as far as possible. 300 Series stainless steel screws and bolts shall be used for jointing and fixing aluminium work

The surfaces of all aluminium which are in contact with other materials when fixed shall be suitably insulated with a non-absorbent insulating material to prevent corrosion. All aluminium work shall be suitably protected against damage, deterioration or discolouration caused by mortar droppings, paint, etc by taping with removable tape, covering with temporary casings or by covering with motor oil

N.4.1 Anodizing of aluminium

Aluminium described as "anodized" shall be treated with Grade 25 coating thickness for exterior use or Grade 15 for interior use as specified, to the required finish. All alloys to be anodized shall be suited to anodizing

N.5 BOLTS AND NUTS

Nuts shall be of at least the strength grade appropriate to the grade of bolt or other threaded element with which they are used

N.6 SCREWING OF METALWORK TO STEEL, WOOD, CONCRETE, ETC

Metalwork described as "screwed" to steel, wood, etc or "plugged" to brickwork, concrete, etc shall be fixed at not exceeding 500mm centres, with necessary holes, countersinking, threading, screws, set screws, self-tapping screws and fibre, plastic or metal plugs

N.7 BOLTING OF METALWORK

Where metalwork is described as "bolted" to steel, wood, brickwork, concrete, etc the bolts are measured elsewhere

N.8 WELDING OF METALWORK

All welds shall be cleaned and filed or ground off smooth to approval. All welded joints shall be continuous

N.9 METALWORK GENERALLY

Metalwork shall have all sharp edges ground smooth. Tubular and pipe work shall include running joints. Rails etc described as "continuous" shall be in long lengths with welded joints

N.10 PRESSED STEEL DOORS, FRAMES, ETC

N.10.1 Door frames

Frames shall project not less than 20mm into floor finish. Except where described as galvanized, frames shall be primed as specified before leaving the factory. Frames are to jambs and heads of openings. Frames for single doors shall be provided with two 100mm steel butt hinges and an adjustable striking plate for a mortice lock and frames for double doors shall be provided with four 100mm steel butt hinges. Butt hinges shall be steel butts with loose pins, welded to frames. Where necessary mortar caps shall be welded to frames and back plates shall be welded on behind tappings for screws

N.10.2 Cupboard door frames

Cupboard door frames shall be as described in N.10.1, but with thresholds of unequal channel section, two 100mm steel butt hinges to hanging stiles, two 75mm steel butt hinges to hanging stiles above transoms, necessary striking plates for mortice locks and keeps for barrel bolts

N.10.3 Combination doors and frames

Combination doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be standard design and required profile, with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with two reinforcing rails welded on. The door shall be provided with two lever mortice lock with lock box welded to inside. Doors shall be welded to steel butts

N.10.4 Transformer room doors and frames

Transformer room doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be of standard design with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with three reinforcing rails welded on. Single doors shall be fitted with a padlock cleat and two 100mm brass pintle hinges and double doors shall be fitted with a padlock cleat, two 150mm bolts and four 100mm brass pintle hinges. Each leaf shall be fitted with a louvered ventilation panel of standard design backed with 6mm mesh galvanized wire vermin proof screen

N.10.5 Sizes

The frame widths given refer to unfinished wall thicknesses

N.10.6 Glazing beads

Where specified, glazing beads shall be 12 x 12mm standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

N.11 STEEL WINDOWS, DOORS, ETC

N.11.1 Windows, doors, etc

All fittings to windows, doors, etc shall be chromium plated. Fixed lights and opening sashes shall be in single squares. Windows etc of single unit construction shall have weather bars at transoms above opening sashes

Composite windows not of single piece construction shall be coupled with standard coupling mullions and transoms that correspond with the window section used

Kicking plates and panels shall be 1,6mm metal plate fixed with standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

Except where described as galvanized, windows, doors, burglar bars, etc shall be primed as specified before leaving the factory

N.11.2 Burglar bars and flyscreens

Where windows are described as fitted with burglar bars or flyscreens, these shall be standard type fitted over opening sashes

N.12 ADJUSTABLE LOUVRE UNITS

Adjustable louvre units shall be suitable for hand or longarm operation

Louvre units shall include glass louvres with polished edges and installation, including holes, screws, rivets, preparation of openings, etc

N.13 ALUMINIUM WINDOWS AND DOORS

The foregoing preambles "N.4 – ALUMINIUM" shall apply to aluminium windows, doors, etc in all respects in so far as they are applicable. Aluminium windows and doors shall be manufactured from extruded aluminium members of 6063T6, 6261-T6 or 6082-T6 alloy and temper

Ancillary members such as sills, flashings, infill panels and the like formed from flat sheet material shall be of an appropriate alloy selected from 1200, 3004 or 5251 complying with BS 1470 of a temper suitable for the method of forming and a composition suitable for anodizing or painting as required

Windows, doors, etc shall be of an approved standard system, manufactured by an approved firm experienced in this type of work, and shall meet with the minimum recommended performance requirements as set out by the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) in the latest edition of the Selection Guide

The fittings for all opening sashes shall be substantial and, unless otherwise described, shall be of high quality aluminium alloy finished to match the windows, doors, etc on which they occur. Samples of all fittings shall be supplied to the Principal Agent for approval

Top, side and bottom hung opening sashes shall be hung on two aluminium hinges with 300 Series stainless steel pins, nylon bushes and stainless steel washers. Side hung sashes shall have fasteners and sliding stays, top hung sashes shall have peg stays and bottom hung sashes shall have spring catches and concealed arms

Projected out sashes shall have aluminium fasteners and concealed arms of a non-corrosive material compatible with aluminium

The frames which are to be built into openings in brickwork shall be fitted with the manufacturer's standard type fixing lugs, not less than 20 x 3 x 150mm long, screwed to frame and placed one near each corner and intermediately not more than 450mm apart to sides, top and bottom and where fixed to concrete reveals, wood sub-frames or to preformed openings in brickwork shall have countersunk holes for screws, one near each corner and intermediately not more than 450mm apart to sides, top and bottom

N.13.1 Glazing beads

Where so described, openings and sashes of windows and doors shall be fitted with approved channel section aluminium glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc and neatly mitred. Screws where necessary shall be of aluminium or 300 Series stainless steel and have pan or raised heads finished to match the beads

N.13.2 Finishes

Windows, doors, etc described as "anodized" shall be treated with Grade 25 coating thickness. Windows, doors, etc described as "factory painted" shall have an electrostatically applied oven baked polyester paint coating not less than 25 micrometres thick

N.13.3 General

Aluminium windows, doors, etc shall include glass as described, fixing in position, sealing and protection against damage, deterioration or discolouration by taping with removable tape or covering with temporary casings or motor oil and removing same on completion

N.14 STRONGROOM AND RECORD ROOM DOORS

Strongroom and record room doors shall not be built in as the work proceeds, but shall be fixed later in the openings provided. The Contractor shall ensure that the lock or other important parts of the door are not tampered with. Should any such tampering occur, the Contractor will be held responsible and at the Principal Agent's discretion shall provide a new door or lock and keys at his own expense. The keys shall not be delivered together with the doors to the building site. The Contractor shall arrange for the manufacturer to send the keys direct to the Principal Agent per registered post. If these instructions are not complied with, a new lock and keys shall be provided by the Contractor at his own expense

N.15 STEEL ROLLER SHUTTERS

Roller shutters shall be of approved manufacture comprising curtain, vertical channel guides and top mechanism. The curtain shall be constructed of 1mm thick machine-rolled galvanized interlocking slats with mild steel end locks spot welded to alternate strips. The bottom shall be provided with a galvanized rail riveted on and vertical edges shall slide in galvanized channel guides formed of steel not less than 2,5mm thick bolted to sides of openings

The mechanism shall be covered in a galvanized sheet iron box. The ungalvanized sections shall be primed as specified before leaving the factory

O. PLASTERING

O.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 225X)
Limes for use in building	SANS 523 (Slaked (hydrated) limes)
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090

O.2 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any plastering or other in situ finishes are commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key. Preparatory coats shall be thoroughly scored and roughened to form a proper key

O.3 FINISH

All coats of paving and plastering shall be executed in one operation without any blemishes

O.4 SCREEDS

Screeds shall be composed of one part cement and four parts sand

O.5 CEMENT RENDER

Cement render shall be composed of one part cement and three parts sand finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Cement render finish shall be divided into panels not exceeding 6m² with V-joints and deep trowel cuts

O.6 GRANOLITHIC

Granolithic shall be composed of one part cement, one part fine sand, two parts coarse sand and one part granite or other approved stone aggregate that will pass through a 5mm sieve, finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Coloured granolithic shall be carried out in two coats in one operation and shall be tinted to the required colour with approved colouring pigment mixed into the finishing coat. Under no circumstances is the pigment to be sprinkled on and trowelled in after the granolithic is laid

Granolithic shall be divided into panels not exceeding 6m² with V-joints and deep trowel cuts

O.7 TERRAZZO

Terrazzo shall be applied in two coats. The undercoat shall be composed of one part cement and three parts sand and shall be finished with a wooden float. The finishing coat shall be composed of one part cement and two parts marble or stone aggregate of a colour and size to obtain the required colour and texture and shall be at least 12mm thick, and applied before the undercoat has dried out. The finishing coat shall be compacted by tamping or rolling until superfluous water has been expelled, finished with a steel trowel and cured for at least seven days after laying. The finished surface shall show at least 80% of the aggregate

Surfaces described as "polished" shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as "polished" shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as "brushed" shall be brushed with a steel wire brush on the day the terrazzo has been laid to expose the aggregate as required

Where required, brass or other dividing strips shall be embedded in the undercoat to finish flush with the finished surface

Three sample blocks, each size 300 x 300mm, as separately measured shall be prepared for approval by the Principal Agent and kept in an accessible place on the site until the completion of the contract

O.8 SKIRTINGS

Skirtings shall not exceed 25mm thick and shall have a fair edge with arris or rounded external angle at top edge or V-joint to finish flush with plaster and coved or square junction with floor finish

O.9 THICKNESS OF PLASTER

All plaster, other than skim plaster, shall be not less than 10mm and not more than 20mm thick

O.10 CEMENT PLASTER

Cement plaster shall comply with the following table:

1	2	3
Plaster Class	Cement:sand (common cement)	Cement:sand (masonry cement)
I	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

O.11 COMPO PLASTER

Compo plaster shall be composed of one part cement, two parts lime and nine parts sand

O.12 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

O.13 TWO COAT PLASTER WITH GYPSUM FINISH

Two coat plaster with gypsum finish shall comprise an undercoat of Class II cement plaster finished with a wooden float and a finishing coat of gypsum skim plaster

O.14 ROUGH-CAST PLASTER

Rough-cast plaster shall be applied in two coats. The undercoat shall be composed of one part cement and five parts sand finished with a wooden float. The finishing coat shall be composed of one part cement and three parts stone aggregate that will pass through a 4mm sieve. The finishing coat shall be flicked on with a machine before the undercoat has set to obtain an even texture

O.15 FINE ROUGH-CAST PLASTER

Fine rough-cast plaster shall be as for rough-cast plaster but the finishing coat shall be composed of one part cement and three parts coarse sand

O.16 GENERAL

Rates for plastering described as being on vertical surfaces of brickwork or blockwork shall include concrete columns, beams and lintels flush with the face of the wall

P. TILING

P.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glazed ceramic wall tiles and fittings	SANS 22
Ceramic wall and floor tiles	SANS 1449
Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 22,5X)
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090
The design and installation of ceramic tiling	SANS 10107

P.2 TILES, MOSAICS, ETC

Tiles, mosaics, etc shall be even in shape and size, free from cracks, twists or blemishes and uniform in colour

P.3 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any tiling is commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key

P.4 CERAMIC WALL AND FLOOR TILING

Where tiles are fixed to plaster or screeds with an adhesive, the adhesive shall be as recommended by the manufacturer of the tiles. Joints shall be straight, continuous and flush pointed with an approved grouting compound

P.5 GENERAL

Tiling described as "on walls" is on brick walls or block walls unless otherwise stated and shall include concrete columns, beams and lintels flush with the face of the wall

Q. PLUMBING AND DRAINAGE

Q.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sheet metal

Sheet zinc	BS 849
Sheet aluminium	BS 1470
Sheet copper	BS 2870

Rainwater systems

Unplasticized poly(vinyl chloride) (PVC-U) components for external rainwater systems	SANS 11
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Pipes and fittings

Steel pipes : Pipes suitable for threading and of nominal size not exceeding 150mm	SANS 62
Plain-ended solid drawn copper tubes for Potable water	SANS 460
Malleable cast iron fittings threaded to ISO 7-1	SANS 4
Polyethylene (PE) pipes for water supply – Specifications	SANS 4427
Cast iron fittings for asbestos cement pressure pipes	SANS 546
Vitrified clay sewer pipes and fittings	SANS 559
Reinforced concrete pressure pipes	SANS 676
Concrete non-pressure pipes	SANS 677
Cast iron pipes and pipe fittings for use above ground in drainage installations	SANS 746
Unplasticized poly(vinyl chloride) (PVC-U) sewer and drain pipes and pipe fittings	SANS 791
Fibre-cement pipes, couplings and fittings for sewerage, drainage and low-pressure irrigation	SANS 819
Pitch-impregnated fibre pipes and fittings and jointing	SANS 921
Unplasticized poly (vinyl chloride) (PVC-U) pressure pipe systems	SANS 966-1
Unplasticized poly(vinyl chloride) (PVC-U) soil, waste and vent pipes and pipe fittings	SANS 967
Rubber joint rings (non-cellular)	SANS 974-1
Copper-based fittings for copper tubes	SANS 1067-1&2
Fibre-cement pressure pipes and couplings	SANS 1223
Polypropylene pressure pipes	SANS 1315
Non-metallic waste traps	SANS 1321-1&2
Vent valves for drainage installations	SANS 1532
Heavy duty cast iron pipe fittings for drainage and gas and water supplies	BS 78

Lead pipes	BS 602
Cast iron pressure pipes for use in drainage and gas and water supplies	BS 1211
Stainless steel pipes for use with compression fittings	BS 4127
Sanitary fittings etc	
Stainless steel sinks with draining boards (for domestic use)	SANS 242
Stainless steel wash-hand basins and wash troughs	SANS 906
Stainless steel sinks for institutional use	SANS 907
Stainless steel stall urinals	SANS 924
Acrylic sanitary ware : Baths	SANS 1402-1
Glazed ceramic sanitary ware	SANS 497
WC flushing cisterns	SANS 821
Flush valves for WC flushing cisterns	SANS 1509
Taps, valves etc	
Water taps (metallic bodies)	SANS 226
Water taps (plastic bodies)	SANS 1021
Single control mixer taps	SANS 1480
Float valves	SANS 752
Plastic floats for ball valves	SANS 1006
Functional control valves and safety valves for Domestic hot and cold water supply systems	SANS 198
Cast iron gate valves for waterworks	SANS 664
Automatic shut-off flush valves for water closets and urinals	SANS 1240
Check valves (flanged and wafer types)	SANS 1551-1&2
Fire extinguishers	
Portable refillable fire extinguishers	SANS 1910
Portable rechargeable fire extinguishers : Halogenated hydrocarbon type extinguishers	SANS 1151
Water heaters and fire hose reels	
Fixed electric storage water heaters	SANS 151
Fire hose reels (with semi-rigid hose)	SANS 543
Drainage covers, gratings, etc	
Cast iron surface boxes and manhole and inspection covers and frames	SANS 558
Cast iron gratings for gullies and stormwater drains	SANS 1115
The installation of polyethylene and poly (vinyl chloride) (PVC-U and PVC-M) pipes	SANS 10112
Water supply and drainage for buildings	SANS 10252-1&2

Q.2 GENERAL**Q.2.1 Excavations**

Excavations shall be deemed to be in "earth". Backfilling to excavations shall be executed in 300mm thick layers, watered and compacted. Surplus excavated material shall be spread and levelled over site as directed

Q.2.2 Concrete

Unreinforced concrete shall be Class B prescribed mix concrete and reinforced and precast concrete shall be Class C prescribed mix concrete

Q.2.3 Brickwork

Brickwork shall be of extra hard burnt bricks built in Class I mortar

Q.2.4 Plaster

Plaster shall be 1:3 cement plaster finished smooth with a steel trowel. All angles shall be rounded

Q.2.5 Diameters of pipes etc

Diameters stated for pipes, traps, valves, etc are internal diameters except PVC, polyethylene, stainless steel and copper pipes and traps for which external diameters are stated

Q.3 SHEET METAL WORK**Q.3.1 Galvanized sheet iron**

Galvanized sheet iron shall be rolled steel sheet coated on both sides with Class Z275, unless otherwise specified, zinc coating complying with SANS 3575/4998. Sheets shall be free from white rust

Q.4 EAVES GUTTERS**Q.4.1 Galvanized sheet iron gutters**

Galvanized sheet iron gutters shall have beaded edges and all joints shall be riveted and soldered. Angles shall be strengthened with 50 x 0,6mm galvanized sheet iron strips soldered on over the internal faces of mitres

Gutters shall be fixed with falls to outlets on 30 x 3mm galvanized mild steel brackets, bent to the shape of gutters, with front ends taken up to the underside of beaded edge of gutter and each screwed to roof timbers or bolted to fibre-cement fascias with 6mm galvanized gutter bolts. Gutters shall be bolted to brackets at front with 6mm galvanized gutter bolts, one to each bracket

Brackets shall be positioned at joints of gutters and intermediately at not exceeding 1,25m centres

Q.4.2 Fibre-cement gutters

Fibre-cement gutters shall have spigot and socket joints. Gutters shall be fixed with falls to outlets on standard aluminium alloy brackets, screwed or bolted to roof timbers or fascias

Q.4.3 Unplasticized polyvinyl chloride (UPVC) gutters

Gutters shall be fixed with falls to outlets on brackets as supplied by the manufacturer, screwed or bolted to roof timbers or fascias

Q.4.4 Aluminium gutters

Aluminium gutters shall be roll formed on site to required lengths and profiles from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides with baked enamel and two coats of silicone modified polyester to a total minimum thickness of 20 micrometres. Angles, stopped ends, etc shall be prefabricated units pop riveted to gutters with joints sealed with mastic. The guttering shall be in continuous lengths between angles, stopped ends, etc

Q.5 RAINWATER PIPES

Q.5.1 Galvanized sheet iron pipes

Galvanized sheet iron pipes shall have seams at the back and shall be jointed with soldered slip joints. Pipes shall be fixed to walls etc with galvanized mild steel holderbats spaced at not exceeding 2m centres with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.2 Fibre-cement pipes

Fibre-cement pipes shall have spigot and socket joints. Pipes shall be fixed to walls etc with standard aluminium alloy holderbats with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.3 Unplasticized polyvinyl chloride (UPVC) pipes

Pipes shall be fixed to walls etc with patented UPVC or aluminium clips and holderbats as supplied by the manufacturer of the pipe

Q.5.4 Aluminium pipes

Aluminium pipes and fixing straps shall be formed from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides as described for aluminium gutters. Pipes shall be in continuous lengths with formed angles, offsets, shoes, etc. Pipes shall be fixed to walls etc with 20 x 0,6mm straps at not exceeding 1,5m centres screwed to 25 x 75 x 100mm hardwood chamfered and oiled blocks plugged to walls

Q.6 STORMWATER CHANNELS

In-situ concrete stormwater channels shall be constructed of unreinforced concrete with segmental channel formed in top. Channels shall be laid to falls on a well rammed earth bottom and finished smooth on exposed surfaces

Precast concrete channels shall be of 25 MPa concrete, generally in 1m lengths, finished smooth from the mould on exposed surfaces, laid to falls on a well rammed earth bottom, jointed in 1:3 cement mortar and pointed with keyed joints

Q.7 JOINTS

Joints of pipes not covered by SANS shall be as follows:

Pipes

Fibre-cement, concrete, pitch-impregnated fibre and vitrified clay pipes for use under ground in non-pressure pipe lines

Cast iron for use above ground

Cast iron for use below ground

Galvanized mild steel

Joints between pipes of different materials shall be as follows:

Between cast iron and mild steel

Between cast iron and clay

Between mild steel or copper and clay

Joints

Flexible joints in accordance with the manufacturer's instructions

Spigot and socket joints with tarred rope yarn and caulking compound

or

Plain ended joints with stainless steel couplings with neoprene rubber sleeves

Spigot and socket joints with tarred rope yarn and caulking compound

Joints of screwed galvanized steel sockets or bolted galvanized iron flanges

Screw joints with plastic jointing tape or hemp

Flanged joints which shall be bolted and provided with rubber gaskets and with flanges screwed to pipes

Spigot and socket joints with tarred rope yarn and caulking compound

Spigot and socket joint with semi-dry cement caulking and 1:2 cement mortar fillet

Spigot and socket joint with either bitumen or semi-dry cement caulking and 1:2 cement mortar fillet

Q.8 FIXING OF PIPES

Pipes shall be fixed as follows:

Q.8.1 Galvanized mild steel (except those stated in Q.8.3)

To walls with galvanized mild steel brackets for pipes not exceeding 80mm diameter and with galvanized cast iron hinged holderbats with brass pins or bolts for pipes exceeding 80mm diameter; both types with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type galvanized mild steel holderbats

Q.8.2 Copper and stainless steel

To walls with brass holderbats or screw-on type two-piece spacing clips for pipes not exceeding 75mm diameter and with purpose made holderbats for pipes exceeding 75mm diameter; both types with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type brass holderbats

Q.8.3 Cast iron and galvanized mild steel for soil, waste and vent pipes

To walls with hinged cast iron holderbats with brass bolts and with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type galvanized mild steel holderbats

Q.8.4 Polyethylene, polypropylene and patented UPVC or unplasticized polyvinyl chloride

To walls, woodwork, etc with aluminium clips and holderbats as supplied by the manufacturer of the pipes

Q.8.5 Fibre-cement

To walls with aluminium alloy holderbats with tails cut and pinned in 1:3 cement mortar

Q.8.6 Pipes fixed to ceilings

Fixed with holderbats and standard or purpose made hangers, with extended hangers for pipes to falls

Q.9 PIPES LAID IN GROUND

Q.9.1 Water pipes etc

Water pipes, gas pipes, etc laid in ground shall be at least 400mm deep from the crown of the pipe to the finished surface

Q.9.2 Drain pipes

Excavations taken out too deep shall be filled in with selected soil and compacted. Backfilling to sides and up to 300mm above plastic pipes shall be free from stone or hard substances which will not pass a 10mm mesh

Q.10 CLEANING EYE LIDS

Cleaning eye lids for drain pipe fittings shall be fixed and sealed as follows:

Pipe fittings

Method of sealing and fixing

Fibre-cement

Sealed with synthetic rubber or bituminous mastic packing and fixed with screws

Vitrified clay

Polypropylene lid sealed with synthetic rubber packing and pressed into position

Polypropylene and unplasticized polyvinyl chloride

Sealed with synthetic rubber packing and screwed on or pressed into position

Cast iron

Sealed with tallow or putty and fixed with non-ferrous metal screws

Galvanized malleable cast iron and cast brass

Sealed with synthetic rubber packing and screwed in

Q.11 CLEANING EYES

Cleaning eyes shall consist of cast iron frames and lids with letters "CE" (or "SO") cast in lids. The lids shall be secured with non-ferrous metal screws. Frames shall be jointed to vertical drain pipes. Cleaning eyes shall be encased in unreinforced concrete taken up to ground level and plastered on exposed surfaces

Q.12 INSPECTION EYE MARKER SLABS

Inspection eye marker slabs shall be 350 x 350 x 50mm thick precast concrete finished smooth from the mould, with letters "IE" (or "IO") formed in top and placed flush in ground or paving

Q.13 GULLEYS

Gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete to finish flush with gulley head top and taken up to at least 50mm above surrounding finished surfaces. The outer top edge of the concrete encasing shall be splayed and the exposed surfaces plastered

Q.14 DISHED GULLEYS

Dished gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete and with dished unreinforced concrete hopper size 450 x 450mm overall around gulley head with rounded kerb 50mm wide to front and sides and 25mm wide at back, 100mm high above top of dishing and the hopper plastered on exposed surfaces. Top of hopper shall be taken up to at least 50mm above surrounding finished surfaces

Q.15 SUMPS, CATCHPITS, INSPECTION CHAMBERS, ETC**Q.15.1 Rainwater sumps**

Rainwater sumps shall be built with half-brick sides on 100mm thick unreinforced concrete bottom, plastered internally on walls and with 80mm high unreinforced concrete kerb at top rebated for grating or cover and plastered on exposed surfaces

Q.15.2 Stormwater catchpits and inspection chambers

Brick catchpits and inspection chambers shall be built with one-brick sides on 150mm thick unreinforced concrete bottom projecting 100mm beyond walls all round, plastered internally on walls and with 100mm thick reinforced concrete cover slab with opening rebated for frame of grating or cover and plastered on exposed surfaces

Precast concrete catchpits and inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LE-1 of SANS 1200LE. Precast concrete manhole sections and slabs shall comply with SANS 1294 and pipes shall be SC type and in accordance with SANS 677

Q.15.3 Sewer inspection chambers

Brick inspection chambers shall be built as for brick stormwater inspection chambers and with the bottom of the chamber well benched around half round channels, bends, junctions, etc up to sides of chamber in unreinforced concrete finished smooth

Precast concrete inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LD-5 of SANS 1200LD. Precast concrete manhole sections and slabs shall comply with SANS 1294 and the pipes shall be SC type in accordance with SANS 677

Q.15.4 Stormwater drain junction boxes

Junction boxes shall be formed of 150mm thick unreinforced concrete bottom and sides to suit the various sizes of the drain pipes and built after the pipes have been laid, with the sides taken up slightly higher than the highest pipe and finished level on top for and covered with a 75mm thick loose precast concrete slab

Q.15.5 Step irons

Where inspection chambers exceed 1,2m deep, cast iron step irons shall be provided, built into the wall at 300mm centres and staggered regularly in vertical rows spaced at 200mm centres horizontally

Q.16 STOPCOCK AND METER BOXES

Stopcock and meter boxes shall be built with half-brick sides with a cast iron box and lid complying with SANS 558 set in 75mm wide unreinforced concrete kerb for the full depth of the cast iron box and plastered on exposed surfaces

Q.17 VALVE CHAMBERS

Valve chambers shall be built with half-brick sides with 100mm thick unreinforced concrete kerb to top with rebate for cover and frame to finish flush with adjacent paving or finished ground level and plastered on exposed surfaces

Q.18 CAST IRON COVERS, GRATINGS, ETC

All cast iron covers, gratings, frames and surface boxes shall be coated with preservative solution. Frames shall be cast into concrete. Covers, except covers to stormwater drainage or electrical cable inspection chambers, shall be set in grease

Q.19 CONCRETE ENCASING

Concrete encasing for pipes, bends, traps, gulleys, grease traps, etc shall be unreinforced concrete not less than 100mm thick all round

Q.20 SANITARY FITTINGS

Q.20.1 General

Glazed ceramic, acrylic and porcelain enamelled sanitary fittings and component parts shall be white. Accessories for sanitary fittings shall be chromium plated brass

Waste outlets for baths, basins, etc shall comprise chromium plated brass waste union with grating, rubber washers and locknut, fitted with rubber or vulcanite plug on a chromium plated brass chain and stay

Q.20.2 Stainless steel sanitary fittings

Stainless steel sinks and draining boards, basins, wash troughs and urinals shall be AISI Type 304 satin finished stainless steel. All stainless steel fittings shall be treated on the back with a vermin proof sound deadening coating. Sinks, basins and wash troughs shall be provided with 40mm diameter screwed waste outlets

Q.20.3 Precast concrete wash troughs

Reinforced precast concrete wash troughs shall have a sloping front with ribbed rubbing surface and shall be finished smooth on exposed faces with top edges and inner angles rounded. Each compartment shall be fitted with a 40mm diameter waste outlet. Wash troughs shall each be supported on two reinforced precast concrete pedestals finished smooth on exposed faces

Q.20.4 Steel baths

Steel baths shall be porcelain enamelled internally and painted externally and fitted with waste outlet and overflow grating with coupling

Q.20.5 Acrylic resinous baths

Acrylic resinous baths shall be fitted with waste outlet and overflow grating with coupling

Q.20.6 Acrylic resinous wash hand basins

Acrylic resinous wash hand basins and vanity units shall have a smooth high gloss finish, with outlet openings, soap recesses, tap-holes and integral overflow and shall be fitted with waste outlet and overflow grating with coupling

Q.20.7 Glazed ceramic sanitary fittings

Sinks shall be provided with integral weir overflows

Washdown closet pans shall have washdown action and be provided with smooth finished injection moulded polypropylene heavy duty double flap seats fixed with non-ferrous bolts. Urinal channels shall be provided with outlet gratings fitted in bitumen

Q.20.8 Flush and sparge pipes

Flush pipes for high level cisterns shall be of plastic or drawn galvanized steel

Flushpipes for low level cisterns shall be of plastic

Flush and sparge pipes for urinals with high level cisterns shall be of chromium plated copper piping and of the sizes recommended by the manufacturer of the urinal

Q.21 INSTALLATION OF SANITARY FITTINGS

Sanitary fittings shall be installed as follows:

Q.21.1 Precast concrete wash troughs

Precast concrete wash troughs shall be bedded on top of pedestals which shall be bedded on floors in 1:3 cement mortar

Q.21.2 Stainless steel wash troughs and wash hand basins

Stainless steel wash troughs and wash hand basins shall be fixed to walls on a pair of galvanized mild steel gallow brackets bolted to wall with 6mm diameter expanding bolts

Q.21.3 Acrylic resinous wash hand basins

Acrylic resinous wash hand basins shall be fixed to walls on a pair of standard painted cast iron brackets screwed to underside of basin and bolted to wall with 6mm diameter expanding bolts

Q.21.4 Ceramic wash hand basins

Ceramic wash hand basins shall be fixed to walls on a pair of standard painted steel or cast iron brackets bolted to wall with 6mm diameter expanding bolts

Q.21.5 Acrylic resinous baths

Acrylic resinous baths shall be bedded in 1:5 cement mortar on three cross rows of bricks or bedded solid on a layer of dry river sand and fixed to wall with galvanized steel brackets under edges (in the middle of the sides against walls) bolted to wall with 6mm diameter expanding bolts and sealed along top against wall finishes with patent mildew resistant silicone rubber

Q.21.6 Washdown closet pans and cisterns

Washdown closet pans shall be bedded on floors in 1:3 cement mortar. Cisterns shall be fixed to walls with 6mm diameter expanding bolts

Q.21.7 Ceramic urinals

Ceramic stall and slab urinals shall be bedded on floors and against walls in 1:3 cement mortar. Slabs, channels, treads, etc shall be jointed in 1:3 cement mortar and pointed in white cement

Ceramic bowl urinals shall be fixed to walls on standard steel brackets bolted to wall with 6mm diameter expanding bolts. Cisterns shall be fixed to walls on standard brackets bolted to wall with 6mm diameter expanding bolts

Q.21.8 Stainless steel urinals

Stainless steel stall and slab urinals shall be bedded on floors in 1:3 cement mortar and with backs and sides against walls filled in with fine unreinforced concrete. Cisterns shall be fixed as cisterns for ceramic urinals

Q.22 FIRE HOSE REELS

Fire hose reels shall each be fitted with a 30m long hose of internal diameter not less than 19mm with a 4,8mm internal diameter chromium plated brass nozzle

Q.23 FIRE EXTINGUISHERS

All fire extinguishers shall be fully charged

Q.24 TESTS

Sewerage pipe lines, sanitary plumbing including fittings and hot and cold water supply and fire service shall be tested to the approval of the Principal Agent and Local Authority

The Contractor shall provide all testing apparatus, material and labour required for the tests and inspections

R. GLAZING

R.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glass in building	SANS 50572-1 to 5
Glazing putty for wooden and metal window frames	SANS 680
Silvered glass mirrors for general use	SANS 1236
Safety and security glazing materials for buildings	SANS 1263-1 to 3
Sealing compounds for the building industry, one Component, silicone-rubber based	SANS 1305
The installation of glazing materials in buildings	SANS 10137
Work on glass for glazing	SANS 1817

R.2 PUTTY ETC

Glazing putty shall be Type I for wooden sashes and Type II for steel sashes. Putty for glazing to unpainted hardwood shall be tinted to match the colour of the wood

Back putty shall not exceed 3mm thick. Putty shall not be painted until it has formed a surface crust, and if the putty does not form a surface crust it shall be replaced

Butyl putty shall be used where glass is to be fixed in aluminium sashes with glazing beads

Non-setting compounds shall be used where laminated glass is fixed in sashes with glazing beads

S. PAINTWORK

S.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Decorative paint for interior use	SANS 515
Decorative high gloss enamel paints	SANS 630
Primers for wood (for external work)	SANS 678
Primers for wood (for internal work)	SANS 678
Zinc phosphate primer for steel	SANS 1319
Undercoats for paints (except emulsion paint)	SANS 681
Aluminium paint	SANS 682
Varnish for interior use	SANS 887
Emulsion paints	SANS 1586

Materials for paintwork shall be delivered to the site in unopened containers and applied in accordance with the manufacturer's instructions. Materials shall be suitable for application to the surfaces concerned. Undercoats shall be as recommended by the manufacturer of the finishing coats

S.2 PREPARATORY WORK

S.2.1 Plastered surfaces etc

Plastered surfaces shall be thoroughly inspected and, if necessary, washed down and brushed in order to remove any traces of efflorescence and allowed to dry completely before any paint finish is applied. Before any paint is applied, holes, cracks and irregularities in plaster and other surfaces shall be filled with a suitable filler and finished smooth. Unfinished concrete surfaces shall have all projections rubbed off and shall be thoroughly cleaned with a spirits-of-salts solution (1 part concentrated spirits-of-salts to 4 parts water)

S.2.2 Metal surfaces

Metal surfaces shall be sanded, where necessary, washed with a suitable cleaning agent and left smooth

Protective coatings applied by manufacturers to galvanized metal surfaces shall be removed with a suitable agent and the surfaces washed down

Rust, grease and defective factory primers on metal surfaces, as well as pitch on cast iron pipes, shall be removed

S.2.3 Wood surfaces

Knots in woodwork shall be treated with knotting. Minor blemishes shall be filled with a suitable filler. Wood surfaces shall be sanded smooth

S.3 APPLICATION OF PAINT

Primers to wood surfaces shall be applied by brush. Primers to other surfaces may be applied by roller with the approval of the Principal Agent. Undercoats and finishing coats may be applied by brush or roller

Paint shall not be sprayed on except in the case of cellulose and other special paints where spray painting is the accepted method of application

Before subsequent coats of paint are applied the previous coat shall be properly dry and shall be sanded down where necessary

S.4 COLOUR SCHEME

A colour scheme comprising colours and the blending of colours approved by the Principal Agent shall be used for the paintwork. The tints of the undercoats shall closely match the finishing coat but nevertheless differ sufficiently to indicate the number of undercoats. Colour samples of the finishing coats shall be provided in all cases

S.5 GENERAL

Paintwork shall include the preparation of surfaces, filling, stopping, sanding and priming of nail heads and screws. Where windows, sashes, etc are to be painted, the rebates of the openings to be glazed shall be primed

T. PAPERHANGING

T.1 PREPARATORY WORK

Plaster surfaces to be papered shall be dry, thoroughly cleaned down, filled with a suitable filler as necessary to obtain a smooth surface and painted thereafter with a single coat of emulsion paint

Wood surfaces to be papered shall be knotted, stopped and sanded

T.2 PAPERHANGING

Wallpaper shall be hung in vertical long lengths. Vertical joints shall be close-fitted and plumb and the paper shall be tightly fitted to skirtings, ceilings, door frames, windows, etc. Horizontal joints will not be allowed

U. EXTERNAL WORKS

U.1 GENERAL

U.1.1 Excavations

Excavations shall be deemed to be in "earth"

U.2 LANDSCAPING

U.2.1 Topsoil

Topsoil shall vary between sandy loamy soil and sandy clayey soil with an ideal composition of 15% to 25% clay, 10% silt/sludge and 65% to 75% sand, with a minimum ratio of organic material of 2%. All material shall be free of harmful deposits as well as unwanted seeds

U.2.2 Compost

Compost shall be composed of properly decayed organic material, free from harmful deposits, salts, seeds and other waste material and shall have a pH of more than 4 and less than 7

U.2.3 Mulch

Mulch shall be approved organic material free from small particles of bark residue, fungus, disease, etc

U.2.4 Lime

Lime shall be agricultural lime of an approved manufacture

U.2.5 Fertilizer

Fertilizer shall be of the type specified, mixed thoroughly into the soil as prescribed. No fertilizer shall be added more than two weeks prior to planting

U.2.6 Backfilling

Backfilling in plant and tree holes shall be composed of two parts topsoil to one part compost mixed thoroughly together and compacted by foot in 100mm layers. Fertilizer shall only be added if prescribed

U.2.7 Pebbles

Pebbles shall be smooth with a uniform colour and form and ranging in size from 50mm to 75mm diameter. Removal of pebbles from river beds shall be done selectively to avoid any major disruption to the ecology of the river and environment

U.2.8 Plant material

U.2.8.1 General

All plant material (plants, shrubs, trees, etc) shall be obtained from a registered nursery and shall be free from damaged parts, parasites, fungus, other plant diseases or insects. No container-bound plants will be acceptable

U.2.8.2 Trees

The height of trees described in the bills of quantities shall be measured from the top of the root ball to the top of the tree. Where trees are pruned, such prune wounds shall not be more than 25mm in diameter and be sealed with an approved sealing compound

U.2.8.3 Shrubs and small plants

Shrubs and small plants shall meet the requirements for height and spread as specified. Thin or sparsely branched plants shall not be accepted. Branches shall be well spread with ample young branches and the plant as a whole shall be growing well

U.2.8.4 Groundcover

Groundcover shall be dense and healthy and shall comply with the minimum requirements for leaf density as specified

Formal grass shall be planted as runners in 50mm deep drills at 150mm centres unless otherwise described.

U.2.9 Cultivation and preparation of planting areas etc

All surface rocks and stones larger than 50mm shall be removed before commencing cultivation and preparation. The entire area shall be ripped and rotavated using approved machinery by breaking up the earth to a depth of 300mm at 600mm centres in both directions, unless otherwise described, and then levelled. Where fertilizer or compost is specified, it shall be worked into the topsoil after ripping and rotavation to a depth of 300mm and finished to final levels

All fertilizer to areas to be grassed shall be strewn on the final layer before final finishing is commenced and worked mechanically into the top 150mm soil

U.2.10 Planting procedure

Holes for shrubs and groundcover shall be as follows:

Shrubs – 500 x 500 x 500mm deep

Groundcover – 300 x 300 x 300mm deep (if not planted in drills)

Holes for trees shall be square, of adequate size to accommodate the root system and suitable for the height of the tree

All plant material shall be watered thoroughly before careful removal from the container and planted in the prescribed planting medium with the top of the soil in the container finishing level with the surrounding area. Water dams size 800mm diameter x 150mm deep and 500mm diameter x 150mm deep shall be formed around trees and shrubs respectively and all planting material shall be watered immediately after planting. Trees, shrubs, etc shall be properly staked or stayed, depending on their size, on the prevailing windy side with patent tree ties

U.2.11 Maintenance

All planted areas shall be maintained for a period of three months after practical completion as defined in the contract with the exception of hydroseeded areas which shall be maintained for 12 months after an acceptable cover has been obtained

This maintenance shall consist of keeping clear of weeds and litter, loosening soil where necessary every two weeks, replacing damaged, diseased or dead plants, pruning, cutting and mowing as necessary and watering so as to keep the plant material in a healthy growing condition

U.3 ROADWORK

U.3.1 Filling

Filling under roads etc shall be of inert material having a maximum plasticity index of 10, free from large stones etc spread, levelled, watered and compacted in layers not exceeding 200mm thick to a density of 98% Mod AASHTO

U.3.2 Preparation of sub-grade

The sub-grade shall be prepared by scarifying for a depth of 150mm and compacting to a density of 98% Mod. AASHTO, including trimming to the correct levels and grades

U.3.3 Base course

The base course shall consist of crusher run stone compacted to a density of 98% Mod. AASHTO and finished to the correct levels and grades

U.3.4 Weed killer

The completed sub-grade shall be treated with an approved total weed killer

U.3.5 Bituminous premix road surfacing

Before spreading the premix material, the base course shall be swept clean and free from all dust, dirt and loose particles, lightly wetted and sprayed with a prime coat of cutback bitumen complying with SANS 308 at the rate of 1 litre/m²

The material shall consist of semi-gap graded crushed stone aggregate having the following grading:

Sieve size (mm)	% By mass passing sieve
13,2	100
4,75	45-60
2,36	42-55
1,18	40-52
0,3	25-45
0,075	5-12

The aggregate shall be mixed with bituminous road tar binder complying with SANS 748 at the rate of 1m³ of stone to 120 litre of emulsion at atmospheric temperature

The binder shall be added to the stone and mixed until the stone is uniformly coated. Thereafter 5% of clean, dry quartzitic sand shall be added and mixed until evenly distributed through the mixture

The premix shall be applied only after the primer has dried out completely and shall be spread immediately after mixing and rolled on the same day

Spreading shall be done evenly over the prepared base course to a loose depth sufficient to ensure the consolidated thickness specified

Rolling shall commence as soon as the binder has set sufficiently, followed after three days by a final rolling

U.3.6 Precast concrete block road surfacing

Paving blocks shall be precast concrete blocks complying with SANS 1058

Blocks shall be laid to true levels and grades on and including a 25mm thick layer of river sand with joints exceeding 2mm and not exceeding 6mm wide

After laying, the paving shall be compacted by means of a vibrating plate compactor, with joints between the blocks filled in, after compaction, by sweeping in fine sand

Infill areas at edges of paving constituting less than 25% of a full block unit and of 25mm minimum dimension shall be filled with Class C prescribed mix unreinforced concrete with top surface trowelled smooth to match blocks. Smaller areas shall be filled with 1:4 cement mortar

U.3.7 Precast concrete kerbs and channels

Precast concrete kerbs and channels shall comply with SANS 927, generally in 1m lengths and finished smooth from the mould on exposed surfaces. Kerbs and channels shall be bedded on and jointed in 1:3 cement mortar and pointed with keyed joints. Bases to kerbs shall be Class B prescribed mix unreinforced concrete

U.3.8 Process control tests

The Contractor shall be responsible for carrying out all necessary process control tests on the density and moisture content of the compacted sub-grade, base course, etc to ensure that the required compaction is being attained

U.4 FENCING ETC

U.4.1 Materials

Materials and workmanship shall comply with the following specifications and requirements :

Wooden poles, droppers, guardrail posts and spacer blocks	SANS 457-2&3
Zinc-coated fencing wire	SANS 675
Prefabricated concrete components for fencing	SANS 1372
Chain-link fencing and its wire accessories	SANS 1373

Fasteners	SANS 1700
Anti-intruder fences	CKS 451
Metal droppers and standards	CKS 451
U.4.2 Galvanized wire	
All galvanized wire shall be zinc coated wire with Class B zinc coating. Straining wire shall be 4mm diameter galvanized mild steel wire. Tie wire shall be 1,6mm diameter galvanized mild steel wire	
U.4.3 Plastic coated wire	
Plastic coated straining wire shall be 3,15mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,95mm	
Plastic coated tie wire shall be 1,8mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 2,5mm	
U.4.4 Galvanized barbed wire	
Galvanized barbed wire shall be 2,5mm diameter mild steel double strand reverse twist zinc coated barbed wire with Class A zinc coating	
U.4.5 Galvanized wire mesh	
Galvanized wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire	
U.4.6 Plastic coated wire mesh	
Plastic coated wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,25mm	
U.4.7 Galvanized welded wire mesh	
Galvanized welded wire mesh shall be fabricated from pre-galvanized wires to rectangular pattern welded together at each intersection using a welding method which forms a zinc oxide protective coating at each intersection	
U.4.8 Razor wire	
Razor wire shall be fabricated from 2,5mm diameter galvanized high tensile steel wire fitted with razor barbs formed of 0,5mm galvanized steel strip clipped on at 37,5mm centres	
U.4.9 Metal droppers and standards	
Droppers shall be of ridged T-section mild steel with a mass of not less than 0,55kg/m. Standards shall be of I-section mild steel with a mass of not less than 3kg/m or of ridged edge Y-section mild steel with a mass of not less than 2,5kg/m, and shall be driven 600mm deep into the ground	
Droppers and standards shall have either galvanized, sprayed metal or painted finish as described in the items and in accordance with CKS 451. In addition, those surfaces of standards embedded in the ground shall be coated with bitumen	
U.4.10 Metal posts and stays	
Posts and stays shall comply with CKS 451 and shall be of black galvanized mild steel tubing as specified	
Straining posts shall be of 108mm outside diameter x 3mm wall thickness tubing, each with a 300 x 300 x 5mm thick mild steel sole plate and a steel cap welded on	
Intermediate posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate and a steel cap welded on	
Stays for straining posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate welded on and fixed raking with top end flattened, bent, holed and bolted to straining post with and including a 5mm diameter galvanized mild steel bolt with nut and washer	
Posts and stays shall have either galvanized or painted finish as described in the items and in accordance with CKS 451. In addition, sole plates and portions of posts and stays embedded in ground shall be coated with bitumen	

U.4.11 Timber posts, stays and droppers

Timber posts shall be 125mm diameter, timber stays shall be 100mm diameter and timber droppers shall be 30mm diameter

U.4.12 Prestressed concrete posts and stays

Prestressed concrete posts and stays shall be finished smooth from the mould and uniformly stressed by means of high tensile longitudinal prestressing wires with concrete cover to wires of not less than 20mm

Corner and straining posts shall be 100 x 100mm and intermediate posts and stays shall be 75 x 75mm. Stays shall be fixed raking with top end splayed and glued to posts with a suitable epoxy compound

U.4.13 Bolts, nuts and washers

Straining eye bolts, hinge bolts, bolts, nuts and washers shall be galvanized

U.4.14 Precast concrete fencing

Precast concrete fencing over sloping terrain shall be stepped to suit terrain, including the use of increased lengths of posts as necessary, excavation, etc

U.4.15 Concrete bases

Bases in ground for posts, stays, etc shall be of Class B prescribed mix concrete with tops 100mm below surface of ground

Sizes of concrete bases for posts, stays, etc shall be as follows:

Straining and gate posts	—	450 x 450 x 700mm deep
Intermediate posts	—	300 x 300 x 600mm deep
Stays	—	600 x 300 x 500mm deep

U.4.16 Security overhangs

Where fencing is described as having a security overhang, the posts and standards shall have angular (single arm) extension arms

Extension arms shall be attached to the posts and standards by welding in the case of steel and by spiking in the case of timber

Concrete extension arms shall be cast integrally with the post or standard

Barbed wire to security overhangs shall be tightly strained and wired at each intersection with extension arms and shall have barbed wire braces at 450mm centres between standards, posts, etc wired onto the barbed wire and the top straining wire

U.4.17 Gates

Gates shall be formed of 40mm outside diameter x 2,5mm wall thickness mild steel tubular framework with welded joints, strongly braced as necessary and filled in with wire mesh as described above, properly strained and securely bound to framework with tie wire



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

General Electrical Specifications

GENERAL ELECTRICAL SPECIFICATION

(ALL IN CONTRACTS)

1. CONDUIT AND CONDUIT ACCESSORIES

1.1 Conduit

Conduit shall be of steel galvanised internally and externally, either solid drawn, or welded and not less than 20 mm diameter, with all rough edges removed. All tube ends removed. All tube ends are to be reamed. With screwed conduit one threaded end is to be fitted with a coupling and the other end is to be protected against damage.

UPVC conduit may only be used if permitted by the Head : Works and only in those areas which he may specify. In this case this conduit shall be according to SABS 950.

Conduit accessories, which are secured to the conduit by means of lugs, screws or setscrews, are not acceptable.

General requirements of conduiting to SABS IEC 60614 (1).

Metal conduits shall be fully in accordance with SABS 1065 PART I.

1.2 Conduit Accessories

All conduit accessories shall be galvanised both internally and externally and comply with SABS 1065 – PART II.

All screwed conduit fittings shall be of malleable cast iron.

Where fittings are fitted with covers, the covers shall be of galvanised pressed steel secured with brass screws.

1.3 Flexible Conduit

Flexible conduit shall be of the plastic covered metal type complete with brass connectors to the approval of the Head : Works.

2. INSTALLATION OF CONDUIT

2.1 General

Except where cables are specified for certain circuits, the installation(s) shall be tubed throughout in steel conduit. Split conduit is not permitted. All conduits shall, wherever possible, or unless otherwise specified or agreed, be concealed in the structural work.

Except where agreed or otherwise specified or indicated on the drawings, all conduit to points shall run via the ceiling and floor slabs or roof space. In damp situations and where exposed to the weather, the conduits shall be so installed as to avoid, as far as possible, the condensation of moisture within them. All running joints are to be painted with an approved metal primer.

Mechanical and Electrical continuity must be maintained throughout the installation. Each length of conduit and every conduit fitting must be inspected for defects and all sharp edges or burrs must be removed before it is installed. All joints are to be tightly fitted together.

Running joints with long threads, where used, are to be fitted with a lock nut and the running thread shall not be longer in length than a coupling and lock unit.

In conduits smaller than 32 mm elbows and normal bends are not to be used but conduits are to be set to the required angles.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible tubing (see Par 1.3).

No wiring shall be drawn into conduits until the conduits have been installed.

Where more than one socket outlet is connected on a circuit, the conduit shall be looped from the one outlet box to the following outlet box.

All switch-boxes, socket outlet boxes and any other purpose made metal box including distribution board trays shall be suitable treated against corrosion before installation with "Rustodian" or other approved metal primer.

All conduits shall be securely fixed into chases, and all flush switch and socket outlet boxes must be firmly embedded in cement mortar.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, worktops, etc, before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dados and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

2.2 In Roof Spaces

The conduit in roof spaces shall be installed parallel or at right angles to the roof truss members and shall be secured at centers not exceeding 1,2 m by means of galvanised saddles nailed to the timbers with galvanised clout nails. Crampets will not be allowed.

Crossing of conduits is to be avoided wherever possible. Where unavoidable, one conduit must be neatly set over the other. Where a number of conduits have to run back to the distribution board or switchboard, they shall run parallel to the distribution board or switchboard, and at saddle distance to each other wherever possible.

Conduit runs from distribution boards shall terminate in fabricated sheet steel draw boxes installed in the roof above the distribution boards. Each draw box shall be fabricated from 1,6 mm galvanised sheet steel with welded corners and

suitably treated against corrosion with "Rustodian" or other approved primer and finished in aluminum paint.

Each draw box is to be fitted with slip-on lid with a 13 mm skirt. The box shall be 75 mm deep, shall be rectangular in shape and the size of conduits entering or leaving the box. Conduits shall be fixed to the box by means of couplings and brass male bushes or lock nuts and brass bush-nuts.

Conduit droppers shall be neatly cut into timber wall plates and set to face the right direction. All sets must be uniform. Conduits may be set at angles only where droppers or ceiling points are within 230 mm of roof members.

No conduits are to be run over the top of gangplanks or trapdoors.

Draw-in boxes with metal covers shall be provided where required and shall be installed near the gangplanks, if any. All inspection conduit fittings in open roof spaces shall face upwards to facilitate wiring and to permit easy inspection. Three-way conduit boxes shall be used for tee-off purposed in open roof spaces. Inspection tees are not to be used except where otherwise agreed or specified.

All conduits extended into a roof space with a roof clearance of more than 900 mm shall be set onto the beam and extended into the roof for a distance where there is sufficient clearance. Under flat roofs or where there is less than 900 mm clearance, the conduit shall be installed as specified for tubing in concrete slabs, right angle bends should be kept to a minimum and the shortest route taken.

Where false ceilings occur they shall be tubed as called for in the detailed specification. Conduits in restricted spaces and run as for concrete slabs must however, be installed in a neat and orderly manner.

Conduits to ceiling points for all types of fittings must be firmly supported and shall terminate in a back entry conduit box. The conduit box shall be taken through to the face of the ceiling and finish flush. Where the ceiling brander interferes with the installation of the ceiling point specified, the Contractor must trim the brander to allow the conduit box to be taken through to the face of the ceiling as specified. Luminaires must be bonded to the conduit box by means of metal threaded screws.

2.3 **In Concrete Slabs**

In order not to delay building operations, the Contractor must ensure that all conduits and conduit fittings, which are to be cast in concrete, are laid in good time. The Contractor shall have a competent Electrical Artisan standing by during casting of concrete, etc, to ensure that the conduit boxes are not damaged during casting of concrete.

Draw boxes, expansion joints boxes and round conduit boxes are to be provided where necessary.

Deep type conduit boxes shall be used for side entering conduits and normal shallow boxes may be used for back entry conduits. No elbows, bends or sharp sets will be allowed in concrete slabs except in cases of conduits of 40 mm diameter or when larger sweeping bends will be permitted.

Common drawn and/or inspection boxes shall be used where there is more than one circuit involved. They shall be installed in lavatories, storerooms, or other inconspicuous places. Covers shall be of hardboard neatly finished to match the finished ceiling or wall surface, and shall be fitted parallel to the wall or ceiling.

All boxes, etc. are to be securely fixed to the shuttering to prevent displacement when concrete is cast. All conduits must be laid off the deck, supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete beams and slabs.

Expansion joints shall be shown on layout drawings and shall consist of a metal box in which one conduit is fixed and the other capable of movement with the building's expansion and contraction. Earth continuity of these joints shall be maintained by means of stranded copper conductors bonded to the conduits in the box as shown on the drawing.

Earth conductors and clamps buried in concrete are not permitted.

Conduits must be spaced sufficiently apart to allow for proper concreting. All joints shall be painted with an approved metal primer after completion of the tubing installation, prior to the concreting. All exposed parts of the conduit installation shall be suitably, protected against corrosion at the discretion of the Head : Works.

Before any concrete slab is cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

2.4 **Surface Work**

All conduit must be plumbed and leveled and only straight lengths shall be used.

In cases where doorframes are out of plumb, or fittings, beams etc, are out of level, the conduit shall be run parallel with the doorframes, fittings, beams etc.

No threads shall be visible when the conduit installation is complete, except on running couplings.

Running couplings shall only be used where unavoidable and shall be fitted with a sliced coupling as a lock nut.

No inspection or normal bends are to be used on surface work, except with the approval of the Works Inspector and where conduits of 32 mm diameter or larger are used. Conduits shall be set uniformly and inspection couplings shall be used where necessary.

Fittings, tees, boxes, couplings, etc, are to be cut into the surface to allow the conduit to fit flush against the surface or alternatively spacer bar saddles may be used. Conduit is to be bedded into any irregularities to avoid gaps between the surface and the conduit.

Double sets, where used, shall be parallel with no twists and shall be as short as possible. All conduits, which terminate at metal trays, boxes, industrial switches and plugs shall do so by means of couplings and male bushes. No couplings will be permitted in droppers of lengths less than 3.6 m.

Where crossings of conduits is unavoidable, purpose made metal boxes shall be used. The length of the box is to be 8 times the diameter of the largest conduit, the width one and half times the sum of the diameter of all the conduits, and the depth one and half times the diameter of the largest conduit with a minimum depth of 50 mm. The box shall be fitted with a neatly fitting cover and the finish shall be in keeping with the general layout.

Where a number of conduits are to be installed in parallel they shall be evenly spaced and grouped under one purpose made saddle. Conduit spacing shall not exceed 10 mm. The purpose made saddle shall be made of 25 x 2 mm galvanised steel strip or other approved material, formed to suit the curvature of the various conduits and shall be drilled and fixed by means of screws between. Saddles shall be spaced at intervals not exceeding 1.8 m, except for conduit droppers, which shall be saddled centrally between ceiling and accessory box. All saddles are to be secured to the wall by means of black japan or brass rounded head screws. Distribution boards, draw boxes, industrial switches and plugs, etc, shall be neatly recessed into the surface of plastered walls to avoid double sets or alternatively spacer bar saddles may be used. On face brick walls the conduit shall be tightly set into the switch or plug.

In situations where there are not ceilings, the conduits are to be run along the wall plates and tie beams.

No wiring is to be carried out until the tubing has been inspected and approved.

Where spacer bar saddles are used, these shall be installed at centers of 1 m for horizontal and 1.5 m for vertical runs.

All conduits shall be painted with an approved enamel paint to match the background colour.

2.5

Future Extensions

In roof spaces with a minimum clearance of 900 mm, switch and plug drips for future use are to be set 300 mm in the correct direction and shall be threaded and fitted with plugged couplings. Where the roof over a slab is to be removed for future expansions, conduits for future use are to terminate 40 mm above tie beams and shall be threaded and fitted with plugged couplings.

Where future extensions are to be below slabs, all switch, socket outlet and other conduit droppers are to terminate 130 mm below slabs or beams with conduit ends threaded and fitted with plugged couplings.

Where provision is made for future extensions to a concrete slab, all conduits required for future use are to project 130 mm from the slab. Conduit projections are to be painted with an approved anti-corrosive paint and must be fitted with plugged couplings.

All switch, plug and other outlet boxes required for future use shall be fitted with approved blank cover plates.

Unused lighting outlet boxes are to be fitted with round hardboard or plastic covers with brass cover screws, which shall fit flat on the finished ceiling.

2.6 **Fixing of Conduits**

Conduits shall be fixed to switch and socket outlet boxes by means of couplings and brass male bushes or lock nuts and brass bush nuts. Couplings and male bushes to be used on all surface work.

2.7 **Chases and Building Work**

Except where otherwise specified conduits, switch boxes, plug boxes and distribution boards are to be built into the brick walls by the Contractor. It will, however, remain the responsibility of the Contractor to ensure that the above-mentioned boxes and distribution boards are correctly built in and are firmly bedded and cemented into the walls, plumb and square.

The Contractor shall, unless otherwise specified, do all necessary chasing and cutting of bricks. All electrical materials (e.g. conduits up to 40 mm for UG cables, conduits, conduit boxes, distribution boards etc) must be supplied by the Contractor who must arrange to have these on site, and positioned when required for the building work. A competent Electrical Artisan must be in attendance and ensure that the conduits etc are correctly installed and positioned.

The Contractor is to ensure that tubing installed in chases is securely nailed and covered by a layer of 5:1 mixture of coarse sand and cement, finished flush with brickwork and that switch and plug boxes finish flush with the finished wall surface.

The Contractor is to ensure that below distribution boards connected by means of under-ground cables, a 230 mm wide by 115 mm deep cavity in the wall from the cable pipe to the distribution board is to be provided by the Contractor, or alternatively, cable sleeves as specified.

3. **PLUGGING OF WALLS**

Only approved plastic plugs shall be used to secure conduit or equipment up to 5kg mass. The use of round-headed screws only will be permitted.

Heavier equipment shall be secured by means of approved expansion bolts.

Wood plugs and any plugs in the joints in brick walls are not permitted.

4. **FIXING TO CONCRETE CEILINGS**

Ceilings mounted equipment other than luminaires shall be secured to concrete ceilings by means of expansion bolts, shot bolts or "Robot" tools bolts or as expressly specified for the service.

5. **WIRING**

5.1 **PVC Insulated Single Core Medium Voltage Conductor**

The conductor is to be of high conductivity copper wire insulated with Polyvinyl Chloride. The cable shall be finished in the required colours and shall be in accordance with SABS 1507 and 1574.

Circuit wiring shall be of the Loop-in system and no wiring joints in the conduit or conduit fittings will be permitted. Not more than two conductors of a kind will be allowed at any outlet point. the end strands of cables, whether single or looped which have to be connected to terminals of switched, plugs, lamp-holders, fittings and distribution boards, etc, are to be tightly twisted together. Cutting away of wire strands of any cable will not be allowed. Only one circuit in any one conduit will be permitted unless otherwise specified.

Conductor sizes shall be as follows except where otherwise specified:

Lighting circuits	1,5 mm ²	
Bells circuits	1,5 mm ²	
Clock circuits	1,5 mm ²	
Incinerator circuits	2,5 mm ²	
Ironing circuits	2,5 mm ²	with 2,5 mm ² insulated earth wire
Plug circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Geyser circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Heater circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Stove	10 mm ²	with 6,0 mm ² insulated earth wire
Motor circuits		
Up to 4kW single phase	4,0 mm ²	with 2,5 mm ² insulated earth wire
Up to 11kW three phase	4,0 mm ²	with 2,5 mm ² insulated earth wire

To avoid deformation of PVC insulated cables at temperatures in excess of 57° C, they shall not be brought directly on to the terminals of appliances such as electric heaters, or any other electrical appliances or apparatus (including luminaires) which have a temperature in excess of 57° C. They shall terminate in a suitable terminal box as near to the appliance or fittings as possible and connect up from thereon, with heat resistant conductor.

6. **MOUNTING AND POSITIONING OF LUMINAIRES**

Luminaires and installation to comply with SABS 1464 Parts 1 to 22 and IEC 598-1 and IEC 60598 as applicable.

The contractor shall, in the case of board and acoustic tile ceilings (i.e. as opposed to concrete slabs), ensure that the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings shall be adhered to as far as possible. The exact positions must be confirmed on site with the Head : Works.

Except where otherwise specified, pendant luminaires are to be mounted with the bottom of the fittings 2,5 m above finished floor level, mounted on either metal discs or wood blocks.

Under no circumstances shall cover strips be cut to accommodate wood blocks. Wood blocks must be neatly slotted to fit over cover strips and are to be secured by a minimum of two screws, which shall penetrate at least 25 mm into solid

wood. Ceiling cover strips shall be neatly cut to accommodate fluorescent luminaires.

Where ceilings are raked, all incandescent luminaires are to be mounted on shaped leveling wood blocks securely fixed to the ceiling. Batten holders shall be secured to woodblocks by suitable brass screws. Fluorescent luminaires are to be mounted direct on raked ceiling without leveling blocks.

Fluorescent luminaires to be mounted on concrete ceilings shall be screwed to the outlet boxes and additionally supported by means of 50 x 6 mm expansion bolts. The bolts are to be $\frac{3}{4}$ of the length of luminaires apart.

Where a number of luminaires are installed end to end, outlet points must be provided after every second luminaire unless otherwise indicated on the drawing.

The luminaires are to be joined together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

The luminaires are to be jointed together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs and in board ceilings. In board ceilings the conduit box and the conduit shall be secured to the timberwork of the ceiling in such a manner that it shall support any incandescent luminaire, which is designed to be fixed to a normal conduit box.

Fluorescent luminaires shall be secured to board ceilings by means of the conduit box and 6 mm bolts passing through the boards and brandering.

7. **BATTEN HOLDERS**

B.C. batten holders shall be of brass or moulded plastic reinforced type complete with shade ring. The batten holders shall comply with SABS IEC 60238 and SABS IEC 61184. All lamp holders are to have brass terminals with screw type connection.

8. **LAMP HOLDERS**

Edison screw lamp holders	:	SABS IEC 60238
Bayonet lamp holders	:	SABS IEC 61184
Lamp holders for tubular fluorescent lamps	:	SABS IEC 60400

B.C. screwed lamp holders shall be of brass 20 mm E.T. complete with shade ring and shall comply with SABS IEC 60238 and SABS IEC 61184 with screw type connection terminals.

9. **SWITCHES AND SOCKET OUTLETS**

Switches SABS IEC 60669 as applicable and socket outlets SABS IEC 60884 as applicable shall be of the most modern manufacture and bear the SABS mark.

Flush switch and plug cover plates shall, unless otherwise specified, be of anodized aluminium of thickness not less than 0,9 mm, satin or other approved finish as directed and otherwise to be fully in accordance with SABS IEC 1084 for cover plates and SABS 1085 for wall boxes.

10. **POSITIONS OF SWITCHES AND SOCKET OUTLETS**

Except where otherwise specified, lighting switches and socket outlets are to be installed 1,4 m above finished floor level.

All mounting heights specified are to be measured from finished floor level to the bottom of the outlet box.

Where the lower portion of the wall consists of face brickwork and the upper portion of plastered finish, switches and socket outlets are to be mounted in the plastered surface, provided that the lower edge of the plasterwork does not exceed a height of 1,5 m above finished floor level in which case the switches or socket outlets are to be installed in the face brick dado.

Where socket outlet and switch boxes have been installed with fixing lugs below finished wall surface, only approved distance pieces required to compensate for the recess shall be used. The lengths of distance pieces are not to exceed 15 mm.

Unless otherwise approved, light switches adjacent to doors are to be installed at the lock side of the door. Where the lock position is not indicated on the drawings, its position shall be ascertained before the switch box is installed. Switches are to be installed 150 mm from the reveal, or centrally if there is a fitting near the door.

All switch and socket outlet boxes shall be installed plumb, and built into the wall with a 1:1 mixture of cement and sand.

Industrial type switches and socket outlets shall be neatly recessed into the surface of plastered walls to avoid sets or alternatively spacer bar saddles may be used.

Deep type boxes may be used where switches or socket outlets are back to back, but where one side only is to be utilized at the time and the other is for future use, the side for future use shall be suitably covered with a metal cover plate.

11. **LOW TENSION SWITCHBOARDS**

Low Voltage switch gear and control gear to comply with SABS 1473 and SABS IEC 60947 and SABS 60349.

Where switchboards are to be installed in switch rooms or switch cupboards, the Contractor must ensure that the boards are manufactured to suit the dimensions of the rooms or cupboards.

Low tension switchboards shall be specified in detail for each service, but shall generally conform to the following:

They are to be of strong and rigid construction, with suitable angle, channel or folded steel framework. They are to be flush fronted and totally enclosed with sheet steel panels suitably formed at the edges and reinforced to prevent distortion. Unless otherwise directed, all front panels must be at least 2 mm thick and all other panels at least 1.6 mm thick. Panels are to be secured to the framework with studs and chromium plated dome nuts (self-tapping and similar screws are not permitted).

Switches, etc, are to be mounted on metal frames within the boards to give flush front panels. Equipment of normally surface mounted types such as energy meters, time switches and contractors, are to be mounted on inner metal trays behind hinged front panels. In the case of supply authority meters the hinged front panels must have transparent inserts.

All metal work of the boards must be thoroughly degreased, primed with PA 10 self etching primer and finished with one coat of undercoat and two coats of electrical orange high gloss enamel, unless otherwise specified.

All accessible current carrying parts, bus-bars, connecting strips, collector bars, etc, are to be adequately insulated in phase colours and suitably braced to withstand projected fault currents.

Connecting strips and collector bars must be of sufficient cross sectional area to carry full rated current of the switches served, irrespective of the fuse or trip rating.

The complete distribution board including bus-bars must be suitably constructed to withstand fault currents specified.

Connections to bus-bars are to be made by means of lugs suitably bolted and locked with high tensile bolts and connections to lugs must be effected by means of a crimping tools.

Incoming and outgoing bus-bar studs, where required, must be suitably insulated where they pass through panels of the board, and firmly supported within the board.

Where applicable, incoming and outgoing collector bars for cables in parallel must so arrange that the multiple cable ends can be connected to the bars with reasonably short tails which do not have to cross.

Cable supports must be placed at suitable heights having regard to the bending radius of the cables concerned and convenience in making off.

Wall-mounting and floor-standing back to wall type boards must be provided with full easy access to all equipment and wiring without any necessity of disconnecting or removing of any of the equipment mounted in the board.

Clear visible indication of all switch positions must be provided and the switches must be clearly labeled as directed by the Head : Works.

The details of construction proposed, and the Head : Works must approve all equipment of switchboards: Works before manufacture is commenced.

12. **DISTRIBUTION BOARDS**

12.1 **Approval**

The Head : Works must approve the details of construction proposed and all equipment within distribution boards: Works before manufacture is commenced.

12.2 **Flush Mounting Distribution Boards**

These shall be generally manufactured in accordance with SABS 1765. The board shall consist of two panels fitted side by side with common bonding tray and attached to a common architrave. One panel shall accommodate all single phase MCB's and the second panel shall accommodate the main isolator, main bus-bars and the triple pole MCB's. Chassis shall be of rigid channel section rust proofed steel with clip-on trays for the single pole MCB's. The main isolator is to be mounted at the bottom of the second panel with the triple pole circuit breakers above.

12.3 **Surface Mounting Distribution Boards**

These shall be generally manufactured in accordance with SABS 1765, with two panels as for flush boards.

12.4 **Single Phase Distribution Boards**

Single Phased boards shall be generally constructed as three phase boards except they shall have a single panel. Single phase boards shall be mounted with the bottom of the architrave 1,5 m above finished floor level unless specifically directed otherwise.

12.5 **Distribution Board – In Roof Spaces**

Where distribution boards are installed below a roof space, a minimum of 2 x 20 mm and 1 x 25 mm spare conduits are to be run from the distribution board into the roof space.

13. **METER BOXES**

The meter box shall be mounted with the top 1,7 m above finished ground level. Surface mounted meter boxes shall be secured by at least 4 x 10 mm expansion bolts.

Service cables entering the meter box shall be protected by means of a suitably sized galvanised pipe extended 450 mm below the ground surface and securely saddled to the wall and bonded to the meter box.

14. **CONNECTIONS TO OUTLETS**

14.1 **General**

Where connectors are used to connect to the wiring of luminaires and other appliances, the connectors shall comply with SABS Specification 1239.

14.2 **Connection to Stoves**

14.2.1 **General**

The connection to an electric stove, unless otherwise specified shall consist of 2 x 10 mm² conductors and a 6 mm² insulated earth wire in 25 mm conduit. The stove shall be controlled by a 60 Amp micro gap switch of approved make and the connection shall be by means of a 45 Amp 3 pin stove plug of the "Cape Town" type. Cable ends, which are to be connected to the stove, shall be equipped with suitable soldered or crimped lugs. The connection between the stove plug and stove shall be by means of flexible conduit.

Except for high school domestic science unit kitchens (see Clause 14.2.2), the conduit shall be chased into the wall and fitted with a switchbox for housing the micro gap switch and a 25 mm circular conduit box over which the stove plug will be mounted. The stove plug shall be fitted with an adaptor plate and shall be screwed directly to the conduit box by means of round head metal screws. The plug outlet shall face downward.

The stove plug and switch shall be mounted 430 mm and 1,4 m respectively above finished floor level unless otherwise specified or indicated on the drawings.

14.2.2 **Stove Connections in High School Domestic Science Unit Kitchens**

Connections to stoves in High School Domestic Science Unit Kitchens, where the stoves are situated in front of a fitting, shall be generally as specified in Clause 14.2.1 except that the 25 mm diameter conduit shall be run in the floor slab, from the distribution board to a position to the right of the stove. A pedestal, which is complete with a 45 Amp 3 pin "Cape Town" type cooker plug, mounted on the back, shall be fitted over the conduit and securely bolted to the floor by means of expansion bolts. The plug circuit, which passes through the pedestal, is to be on a separate circuit.

14.3 **Connections to Hot-water Cylinders**

The connections to hot-water cylinders not exceeding 3kW loading shall consist of 2 x 4 mm² PVC conductors and 1 x 2,5 mm² earth wire in a 20 mm diameter conduit from the distribution board. The conduits shall be chased in the wall and shall terminate at the side of the cylinder in a box over which is to be mounted a double pole isolator with pilot light.

The final connection between the isolator and cylinder shall be by means of silicone heat resistant conductors in 20 mm diameter flexible conduit.

Connections to roof mounted hot-water cylinders shall generally be as specified above with an isolator with pilot light mounted adjacent.

14.4 **Connections to Power Points**

Connections to electric motors and fixed apparatus to vibration shall, unless otherwise specified or indicated on the drawings, have final connections consisting of conduit and flexible tubing or reinforced hose in accordance with Clause 1.3 of this specification and PVC cables and earth wire of the required size.

An isolator shall protect all fixed apparatus and where necessary a starter fitted with a no-volt coil and overload protection adjacent to such apparatus.

Power points for connection of fixed apparatus to be installed by others, shall terminate in an approved type wall mounted switch unless otherwise specified.

The minimum conductor size for all power points shall be 4 mm² unless otherwise specified.

14.5 **Underground Service Connection**

This clause refers to underground service connections not provided by the Supply Authority.

The service cable and earth wire to be connected at the supply point in accordance with Clause 15.8 of this specification, and unless otherwise specified, shall be laid 600 mm below ground level throughout and otherwise fully in accordance with Clause 15 and all applicable sub-clauses thereof. Cable entries to meter boxes shall be in accordance with Clause 13 and other entries shall be by pipe or duct as directed.

14.6 **Connections to Outbuildings**

Connections to outbuildings shall be made by means of underground cable only, laid in accordance with Clause 15 and all applicable sub-clauses.

Where the cable is run from the roof space of the main building, it shall be enclosed in suitably sized galvanised pipe built into the wall or run surface as directed. Surface run pipes shall be securely saddled at 1,8 m centers. Where the cable connects to the conduit in the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space with fixings at regular intervals, and down to the main board. At the outbuildings, the cable shall be enclosed in a suitably sized galvanised sleeve pipe built into the wall or run surface and terminated in the distribution board tray.

14.7 **Connection and Mounting of Cable Fed Street/Site Lighting**

Street/site lights shall in all cases, except where otherwise specified, be fed by underground cable. Unless otherwise directed, a suitable terminal board shall be provided in the base of the lighting pole for the connection of the incoming and outgoing cables, the feeds from the terminal board to the fitting shall be as specified.

"Surfix" cable and compression glands shall be installed between terminal board and cross arm/bracket mounted luminaires. The terminal board shall also accommodate a miniature circuit-breaker in the phase connection to the fitting. Poles intended for mounting directly in ground are to be provided with a 300 x 300 mm base plate.

15. **UNDERGROUND CABLES**

1000 volt PVC SWA and 110 Volt PILCA cable and accessories shall be in accordance with the relevant SABS specifications to SABS 1507.

The storage, transportation, handling and laying of underground cables shall be according to the manufacturer's requirements and the Contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operation. All cable pipes and ducts entering buildings are to be sealed against the ingress of vermin, water, etc.

15.1 **Trenching**

Cables, unless otherwise specifically directed, shall be laid at a depth of 600 mm below ground level. Trenches shall not be less than 300 mm wide for one to three cables, and the width shall be increased where more than three cables are to be laid together so that the cables may be placed at least 75 mm throughout the run.

The Contractor shall take all necessary precautions to prevent trenching work being in any way a hazard to the public and to safeguard all structures, roads, sewer works, or other property from risk of subsidence and damage.

15.2 **Cable Joints**

Joints in underground cable runs will not be permitted unless unavoidable and at the discretion of the Head : Works. Where cable joints are unavoidable, the cable jointer is to work efficiently and cleanly and so that each end of the cables to be joined may have a minimum of 0,9 m of slack disposed in a loop without stress. Back-filling under joints must be firmly tamped to prevent any subsequent settling.

15.3 **Bedding**

In trenches made in intermediate, hard rock, or boulder material, the cables shall be laid on a 75 mm thick bed of earth and be covered with a 150 mm layer of earth before the trench is filled in. The Contractor to supply all earth required for trench filling.

15.4 **Laying**

Cables shall be removed from the cable drum in such a way that no twisting, tension or mechanical damage is caused, and must be adequately supported at short intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts, to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after the drawing in of the cables.

15.5 **Back Filling**

Back filling after bedding (see Clause 15.3) is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150 mm. The surface is to be made good as required.

Back filling of cable trenches must not be commenced until after the cable trenches and laid cable(s) have been inspected by the Head : Works. Where a Contractor fails to observe this requirement he may, at the discretion of the Head : Works, be required to re-open such cable trenches for inspection at his own expense.

15.6 **Protection of Cables**

Where so directed by the Head : Works, concrete or other warning covers shall be placed over cables above the top bedding layer. Cable pipes when directed are to be installed at road and other crossings.

15.7 **Marking of Cables**

Cable marking tape is to be supplied by the Contractor and is to be laid 150 mm below ground over a cable run and as may be directed by the Head : Works to give early indication of underground cable runs.

15.8 **Joints and Termination of Cables**

Joints in underground cables and terminations shall be made by means of "Scotch Cast" or other approved epoxy-resin pressure type jointing kits. Low tension PVC cables are to be made off with sealing glands and materials designed for this purpose, which must be of approved make.

15.9 **Sealing of Paper Insulated Cable Ends**

Where cables are cut and not immediately made off, the ends must be sealed without delay. If cables are cut and the ends not immediately made off or sealed, the cable may be rejected and the Contractor will be required to replace it at his own expense.

15.10 **Earth Wires**

Except where specifically directed otherwise, earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such earth continuity conductors shall be bare copper wire of a cross sectional area in accordance with the Code of Practice 0142 but shall not be less than 4 mm² nor more than 70 mm². The earth continuity conductor is to be bonded to the cable armouring, and to the lead sheath if any, at each termination, as well as to the local earth bard. The earth wire must be secured to the cable at 1,8 m centers.

15.11 **Opening Up of Existing Cables**

Where it is necessary to expose existing buried cables for any purpose, or to excavate in the vicinity of existing buried cables, pipes, etc, every care is to be exercised and only labourers experienced in such work, and duly warned by the Contractor, shall be employed thereon.

15.12 **Definitions for Classifying of Excavation**

- (a) **Soft Excavation** – shall be excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0,10kW per millimeter of tinned-bucket width, without the assistance of

pneumatic tools such as paving breakers, or that can be efficiently loaded without prior ripping or stockpiling by a rubber tyred front-end loader approximately 15T mass and a flywheel power of approximately 100kW.

- (b) Intermediate Excavation – shall be excavation in material that requires a back-acting excavator of flywheel power exceeding 0,10kW per millimeter of tinned-bucket width and the assistance of pneumatic tools prior to removal by equipment equivalent to that specified in (a) above.
- (c) Hard Rock Excavation – shall be excavation in material that cannot be efficiently removed without blasting or without wedging and splitting prior to removal.
- (d) Class A Boulder Excavation – shall be excavation in materials containing more than 40% by volume of boulders of sizes between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: (1) Excavation of solid boulders or lumps of size exceeding 20 cubic meter will be classified as hard rock excavation.

(2) Excavation of fissured or fractured rock will not be classed as boulder excavation but as hard rock intermediate excavation according to the nature of the material.

- (e) Class B Boulder Excavation – shall be excavation of boulders only in a material containing 40% or less by volume of boulders of size between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: Those boulders that required individual drilling and blasting in order to be loaded by a back-acting excavator as specified in (a) above, or by a track type front-end loader, will each be separately classed as Class B Boulder Excavation.

16. EARTHING

16.1 Main Earthing

The type of main earthing shall be as required by the Supply Authority, if other than the Head : Works and in any case as directed by the Head : Works who may require additional earthing to meet test standards.

Where required, an earth mat is to be provided, the minimum size, unless otherwise specified, being constructed from copper straps 950 x 25 x 3 mm at 230 mm centers and braced at all intersections. Alternatively or additionally earth rods or trench earths may be required, as the Head : Works may direct, and installed according to his instructions.

All earth electrodes and connections thereto must be approved "in-situ" by the Head : Works before back-filling.

The electrical installation shall not be earthed by means of the lightning arrester earth electrode, if such is included in the installation, but may be bonded thereto.

16.2 **Earthing in Installations**

The installation shall be effectively earthed in accordance with the relevant sections of the Code of Practice 0142 and the requirements of the Supply Authority.

All hot and cold water and waste pipes are to be effectively bonded by means of 12 x 1,5 mm solid copper tape (perforated tape or wire will not be permitted), clamped by means of brass bolts and nuts. Bonding tapes exceeding 75 mm in length must be fixed to the wall by means of No. 6 x 20 mm brass screws and plastic plugs not exceeding 150 mm centers. Main earth copper tapes where installed less than 2,5 m from ground level, must be run in 20 mm diameter conduit securely saddled to the wall.

Gutters and down pipes are to be bonded by means of 6 mm round headed brass bolts, with nuts and washers. Self-tapping screws are not permitted.

Connections from the earth bar or terminal on the main board must be made to a visible cold water main, the incoming service conductor, if any, and the earth mat or plate (where such is required) by means of either 12 x 1,5 mm solid copper tape or bare 25 mm² copper wire, or such larger conductor as the Head : Works may direct. From each distribution board separate earth conductors are to be taken to the main earth bar or terminal on the main board. Each conductor shall consist to stranded copper conductors drawn into the conduit together with the distribution board feeders. The size of the earth conductors to be in accordance with the requirements of the Code of Practice 0142 or as specified.

Earthing clips shall be made of not less than 0,9 mm thick copper strips not less than 12 mm wide. They are to be complete with 25 x 7,7 mm brass bolts, washers and nuts and must be constructed so that the clips will fit firmly to the conduit without any additional packing.

Adjustable earth clips are not permitted.

17. **EXISTING BUILDINGS**

17.1 **Occupied Buildings**

Where work is to be carried out in occupied buildings the Contractor must arrange to carry out the installation with as little interruption to services and discomfort to the occupants as possible.

17.2 **Temporary Connections**

Temporary connections shall be provided where necessary for continuity of services, and as directed by the Head : Works. The contractor must ensure that such connections are both electrically safe and free from physical hazard.

17.3 **Old Materials**

Unless otherwise specified all existing materials removed by the Contractor shall remain the property of the Head : Works and are to be handed to the Head : Works.

17.4 **Making Good**

Any damage which may be done to the plaster work, floors, ceilings, wood and paint work, furniture and other equipment in the building, etc, during the progress of the electrical installation shall be repaired and made good by the Contractor to the satisfaction of the Head : Works.

18. **COMPLETION**

18.1 **Balancing of Load**

The Contractor is required to balance the load as equally as possible over multi-phase supplies.

18.2 **Tests**

The installation shall be tested by the Contractor as the service progresses or as required by the Head : Works and upon completion, for earth continuity and insulation. The final test before the taking over of the installation shall be made in the presence of the Head : Works.

The mandatory "Certificate of Compliance" shall be issued by the Contractor to the Supply Authority, with a copy to the Head : Works prior to first delivery being taken.

18.3 **Labelling**

All circuits and apparatus on switchboards shall be suitably correctly labeled by means of engraved plastic labels (white lettering on black), which are to be either bolted or screwed to the equipment panel, or fitted in channeling provided below the switch gear.

Sub-circuits are to be numbered and a legend detailing the circuits is to be framed and fitted to the door of the distribution board.

All other equipment is to be individually labeled to indicate the function.

All switchboards are to be fitted with a label on which the designation of the board is clearly indicated.

A separate engraved label depicting the origin and cable/conductor size shall be fixed below the main switch.

18.4 **Finishes**

Covers for all boxes, expansion boxes, etc, shall be finished to match the paint work of the ceiling or wall surface or as specified.

18.5 **Site Drawing**

On all completed new work or where specifically called for in the Tender Document, the Contractor shall, on completion of the works, submit to the Head : Works, a marked up site plan indicating the exact underground cable reticulation.

19. **POWER DUCTING FOR SCHOOL SCIENCE LABORATORIES**

The ducting shall be "Ductline 3" supplied by Messrs. Lascon Lighting, 102 Malbourne Road, P.O. Box 2479, Durban 4000: Telephone 031-2075081 or other approved.

20. **SPEAKER AND MICROPHONE OUTLETS**

Speaker and microphone outlets are to conform to the following details:

1. Speaker outlet – To have one flat and one round pin.
2. Microphone outlet – To have one round pin only.

Both female and male parts to be supplied and installed by the Contractor.

21. **BELLS AND BUZZERS**

21.1 **Bells**

Bells for schools and hostels shall be 220 Volt AC or 24 Volt DC as specified for the service. They are to be of robust construction encased in a sturdy cast metal weather-proof case. They are to operate on the frequency of the supply. They shall have an adjustable stabilizing spring, gold-silver contact points and 150 mm gongs.

21.2 **Doorbells, Buzzers and Bell Transformers**

These will be as specified for each service.

21.3 **Bell Pushes**

Except where otherwise specified, bell pushes shall be of the flush type suitable for mounting in a standard 100 x 50 mm box. They shall be clearly marked as a bell push and shall be fitted with satin finished anodized aluminium cover plates.

22. **SIGNAL TIMERS**

22.1 **Primary Schools**

The timer shall be designed to automatically signal the start and finish of school periods by the switching of a bell circuit and is to comply with the following specification:

1. The mechanism may be synchronous motor or quartz movement driven with a 24 hour dial or digital time read-out suitable for operation on a 220V 50Hz supply and is to be provided with a spring or battery reserve of a least 24 (twenty four) hours.
2. The unit is preferably to have minute to minute timing for a 24 (twenty four) hour period although 5 (five) minute intervals are acceptable, and is to be provided with Weekend lockout. Signal periods shall be adjustable from 5 – 45 seconds.

3. The unit shall be housed in a metal or plastic case with detachable front cover suitable for wall mounting.
4. Timers with punch tape programming are not acceptable.

22.2 **High Schools and Colleges**

Timers for these institutions shall generally be as for Primary Schools but are to have at least 3 (three) separate programmes and be fitted with three push buttons for independent manual operations for testing of each programme, plus an on/off switch for each programme, which does not affect the running of the clock.

23. **CLOCKS**

Electric clocks shall be of the quartz electronic battery operated type, with a dial of 250 mm diameter. The dial shall be white, with distinctive minute markings and chapters shall be black Arabic figures. Time adjustment shall be simple. Where mains operated electronic clocks are specified, these shall be of the synchronous self starting type, suitable for a 200 – 250 V 50 Hz AC supply

24. **TIME SWITCHES**

The time switch shall consist of a single pole switch with silver to silver or other approved contacts operated by a quartz movement with a 24 hour reserve.

A suitable 24 hour, night and day dial, with hour indicator and two adjustable strikers, one OFF and one ON must be provided. The whole mechanism is to be totally enclosed in a dust proof case.

The current rating shall be required and the switch is to be suitable for operation on 220 volt 50 Hertz AC supply. Time switches used for under floor heating are to be fitted with weekend cut-out.

25. **MOULDED CASE CIRCUIT BREAKERS (INCLUDING MINIATURE)**

Circuit breakers shall be of the size and type as directed and specified for the service. They shall comply with SABS Specification 156 and SABS IEC 60947-2.

26. **SWITCHES: ON-LOAD FAULT MAKING (CIRCUIT BREAKER TYPE) WITHOUT TRIPS**

The switches shall be triple pole, hand operated, panel mounting air break type, having continuous current rating as specified and suitable for operation of 380 – 440 Volt 50 Hz AC system.

The contacts are to be of silver alloy and the switch mechanism shall be of the quick-make, quick-break type.

27. **SWITCHBOARD EQUIPMENT**

Switchboard equipment such as switches, circuit breakers, etc, shall be as directed and specified in the detail specification for the service.

Circuit breaker equipment of SABS IEC 60934.

28. **FUSE-SWITCH UNITS (WITH HRC FUSES)**

The fuse-switch unit is to be of the double pole, or triple pole or triple pole with neutral link type, and of the required current rating, as specified for the service and must be in accordance with BS EN 60947-3.

The fuse links must be fully isolated when the switch is in the open position, and interlocks must be provided to prevent the switch being operated with the cover open.

The fuse links shall comply with SABS Specification 172 and SABS IEC 60269-1 to 4.

29. **BUS-BAR COPPER**

Bus-bar copper must be fully in accordance with Tables A1 and A2 of SABS 1473-2 and SABS IEC 60439-2.

30. **SPECIFICATION COMPLIANCE**

The complete installation shall comply with the requirements of this specification. Should any differences or contradictions exist between this Specification and the detailed requirements for a specific installation, then the detailed requirements shall take precedence.



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Lightning Protection Specifications

LIGHTNING PROTECTION INSTALLATION

GENERAL SPECIFICATION

1. SATISFACTORY INSTALLATION

The whole of the installation shall be carried out in accordance with:

- (a) The latest S.A.B.S. Code of Practice for the Protection of Structures against Lightning - S.A.B.S. 03 ; SABS IEC 61024 (1) , 61024 (1 -1); SABS IEC 61312 (1) ; SABS IEC 61662 & NRS 042.
- (b) The KwaZulu-Natal Department of Works General Electrical Specification.
- (c) The Municipal By-Laws and any other special requirements as deemed necessary by the Local Supply Authority;
- (d) Local Fire Regulations.

2. S.A.B.S. APPROVED DRAWINGS

SABS Approved drawings are not required for this project.

3. TEST ON COMPLETION

Upon completion of the lightning protection system, the following tests shall be witnessed by an appointed representative of the Employer. The results shall be recorded on suitable test certificates which must be signed by both the Contractor and the Employers representative. A sketch must be included on each test certificate indicating the positions of each earth electrode in relation to some permanent reference point. It must also indicate the positions at which tests were carried out, the type of test and the results of these tests.

3.1 Earth Resistance Test

The Earth Resistance Test shall involve measuring the resistance to earth of each rod-type electrode, or group of rod-type electrodes, or trench earth which would normally be connected to one down-conductor or earth terminal. This test must be made with the electrodes completely disconnected from any part of the structure or lightning protection system.

3.2 Electrical Continuity Tests

(a) External Down-Conductors

Electrical continuity between the lower ends of external down-conductors which must all be disconnected from the earthing system during the test shall not exceed 1 (one) ohm.

(b) Metallic Services

Electrical continuity between any metallic structures of services (e.g. rainwater pipes) which form an integral part of the lightning protection system shall not exceed 1 (one) ohm. These tests should be carried out with all other components of the lightning protection system disconnected from the component being tested.

4. **DESCRIPTION OF MATERIAL**

4.1 **Air Terminals and Down-conductors**

All conductors must be in accordance with the requirements of BSS 1474 or American Standards Specification 6063. All aluminium conductors shall have a cross-section area of not less than 30 mm² (domestic dwelling only) or 50 mm² for all other applications. The dimensions of flat section conductors to be 20 mm x 3 mm. Where conductors are mounted in stand-off guides, the cross-section area of the conductor must be not less than 70 mm² to give adequate mechanical strength.

4.2 **Conductor Guides**

The conductor must be mounted in aluminium alloy guides conforming with the material specification given in 4.1 above. The guides must allow for free longitudinal movement of the conductor to cater for expansion and contraction of the system caused by temperature variation. The minimum thickness of any part of the guide shall not be less than 3 mm. The guides must be securely attached to the structure using two stainless steel screws and plugs, the use of plated screws is not permitted.

The conductor system shall be supported in guides so that an air gap exists at all times between the aluminium and the surface of the structure, the guides being seated upon plastic or other similar insulating material. Should conductors be installed directly upon the surface of concrete or cement plaster, an insulating strip is to be installed over its whole length to prevent contact between the two surfaces. Guides shall be installed to support the conductor at intervals not exceeding 1,2 metres horizontally or 1,5 metres vertically.

N.B.: No part of an aluminium conductor system must be allowed to come into direct contact with concrete or cement plaster as this may cause the aluminium to corrode.

4.3 **Expansion Loops**

Where conductors are installed horizontally without deviation from a straight line over long distances, expansion loops must be provided at distances not exceeding 30 metres. These expansion loops must have a cross-sectional area which is at least equal to that of the conductor.

4.4 **Protection of Down-conductors**

Where external down-conductors are installed in areas which are readily accessible to the public, the lower ends of the conductors shall be enclosed in a semi-rigid insulating material. In the case of a circular section conductor this shall comprise a 2 metre length of 20 mm diameter P.V.C. conduit. This conduit shall be securely attached to the wall by means of galvanized steel saddles fixed with stainless steel screws and plugs, spaced at intervals not exceeding 1 m. Where a flat section conductor is used this shall be covered by a similar length of 25 mm P.V.C. conduit. The lower end of the conduit shall be positioned as close as practicable to ground level, i.e. immediately above an aluminium to copper joint. The ends of the conduit shall not be sealed.

4.5 **Earthing Electrodes**

Earthing electrodes must consist of either copper-clad steel rods not less than 12 mm in diameter and having a minimum copper thickness of 0,20 mm driven into the ground, or a 50 mm² (35 mm² for domestic dwellings) bare copper conductor buried in a trench, or a combination thereof. Where copper clad steel electrodes are used they must have a suitable bond between the steel core and copper exterior to prevent moisture ingress between the two metals. Where it is necessary to extend earth rods, an electrolytically compatible corrosion resistant, coupling device, which prevents ingress or moisture into the joint shall be used. The copper conductor below the down-conductor joint shall be covered by a semi-rigid P.V.C. conduit for a distance of approximately 200 mm above ground and 400 mm below ground.

4.6 Joints Above Ground

Circular section aluminium conductors shall be jointed by aluminium ferrules or lugs which are securely crimped into place. Aluminium lugs must be bolted together using 10 mm diameter aluminium bolts and washers. The material specification for these components must conform with that laid down in paragraph 4.1. Alternatively heavily tinned copper lugs and ferrules may be used. The lugs should be joined together by means of 10 mm diameter copper, brass or bronze bolts and washers. Care should be taken to inhibit corrosion where dissimilar metals are used by thoroughly cleaning the surfaces of the metal before assembly and subsequently sealing the joint with an inert tenacious compound or tape.

Flat section aluminium conductors shall be joined by double riveting, using aluminium rivets which comply with the material specification laid down in 4.1. Alternatively 2 x 6 mm diameter stainless steel bolts, nuts and washers may be used. Fold over type bends will not be permitted.

Down-conductors are to be terminated approximately 200 mm above finished ground level. Circular section aluminium is to be jointed to a 50 mm² (35 mm² in the case of domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10 mm diameter copper, brass or bronze nuts, bolts and washers.

N.B. : Under no circumstances shall aluminium conductors be buried in the ground.

4.7 Joints Below Ground

A joint in the stranded copper conductor which forms part of the earthing system must be made by using a crimped copper ferrule clamping (not lugs) using two copper line taps of suitable dimensions, or exothermic welding. The copper earth conductor must be joined to an earth rod by either clamping, using a standard earth rod clamp or copper line tap or by exothermic welding. Joints which are made between dissimilar metals (i.e. copper conductor to galvanized steel water main), must be thoroughly cleaned before assembly. They shall be rendered watertight using waterproof adhesive tape on a suitable compound for a minimum distance of 200 mm in all directions from the joint.

4.8 Bonds

Where it is necessary to bond the aluminium conductor to any other metallic surface, this must be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.

5. GENERAL INSTALLATION PROCEDURE

5.1 Air Terminals for Non-metallic Pitched Roofs

Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys must be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternatively it should have a conductor installed in the form of a closed loop upon the upper surface. The conductors are to follow the outer contour of the stack and must be bonded at a convenient point to the nearest component of the air terminal system.

N.B. : This bond may run in a horizontal or downward direction, but under no circumstances must any part of it run above horizontal.

Conductors may be dead-ended (i.e. have one end free and unbonded), providing that the length of such a conductor does not exceed 10 metres and that the unbonded end is either at the same level or higher than the bonded end. This technique may be used where ridge conductors are installed over dormer windows, etc.

In all cases where metallic gutters have been installed along the eaves of a pitched roof, these must be bonded to the air terminal system. Where metallic gutters do not exist, however, a conductor must be installed over the surface of the roof at eaves level to which the remainder of the air terminal system is to be bonded, with the following exceptions :

- (a) Where the maximum distance from the ground level to the eaves of the building is less than 4 metres and the pitch of the roof is more than 1 in 2 (27° from the horizontal).
- (b) Where the maximum distances from ground level to the eaves is less than 7 metres and the pitch of the roof is more than 1 in 1,5 (34° from the horizontal).
- (c) Where the distance from the ground level to the eaves is more than 7 metres and the pitch of the roof is more than 1 in 1 (i.e. the included angle at the apex of the roof is less than 90°).

Under these circumstances eaves conductors need not be installed.

Any non-metallic objects which protrude above the general roof lines, such as Cape Dutch gable ends, must be protected as described above with a suitable air terminal system. Any metallic objects which protrude above the general roof line, such as hot water expansion pipes must be bonded as directly as possible to the nearest eaves conductor, gutter or other part of the lightning system.

N.B. : These bonding conductors must run in a horizontal or preferably a downward direction, from the vent pipe, etc., to the lightning protection system.

5.2 **Air Terminals for Metallic Pitched Roofs**

Buildings with roofs covered with electrically continuous metal sheets do not require separate air terminals but must be earthed via down conductors generally as described in 5.6 and 5.7. Any non-metallic objects projecting above the general roof line must be separately protected as described in 5.1 and bonded to the metal roof covering.

5.3 **Air Terminals for Non-metallic flat or Mono-pitched Roofs**

For flat or mono pitched roofs of non-metallic construction the air terminal system must consist of aluminium alloy conductors installed around the outer perimeter of each section of the roof structure. These conductors must be installed on top of parapet walls if these exist. Lift motor rooms, tank rooms, penthouses, etc., which protrude above the general roof line must have air terminal conductors installed around the outer perimeter of each roof slab or parapet wall. Any metallic objects which protrude above the roof line, such as expansion pipes, signs, flag poles, handrails, etc., must be bonded directly to the nearest component of the lightning protection system as described in 5.1.

N.B. : It is not permissible for the ends of conductors to be bonded directly to the perimeter air terminal system if the latter is installed upon a parapet wall having a height exceeding 500 mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

5.4 **Air Terminals for Metallic flat or Mono Pitched Roofs**

Metallic flat or mono pitched roofs do not require separate air terminal conductors, providing that there is electrical continuity between the metallic roofing sheets, (see 5.2). A metallic roof surrounded by a non-metallic parapet wall shall have conductors installed at the top of the parapet wall and these must be bonded to the metallic roof at intervals not exceeding 20 metres. If the parapet wall is clad with metal over its upper surface or a handrail is installed which affords good electrical continuity, separate air terminal conductors need not be installed. Under these circumstances the metal handrail or cladding must be bonded to the metal roof covering at intervals not exceeding 20 metres.

All non-metallic covering such as slates, tiles, asbestos cement sheeting, etc., supported by a steel structure being electrically continuous throughout may be treated as being of a complete metal construction. In these circumstances no separate air terminal system need be installed providing the steel roof structure is bonded to earth at intervals given in 5.5.

5.5 Down Conductors for Non-metallic Structures

Down conductors must be installed at regular intervals around structures and to run as directly as possible between the air terminal and earthing system. They must, where practicable, be positioned at the external corners of the structure. The maximum separating distance between down conductors around the perimeter of the structure must not exceed 30 metres. In the case of very tall buildings having a slender base (i.e. chimney stacks, water towers, etc.), a minimum of two down conductors must be installed.

The lower ends of down conductors are to be terminated and bonded to the earthing system approximately 200 mm above finished ground level. Under no circumstances must aluminium conductors be buried underground. Test joints must be provided between the down conductors and earthing system. Down conductors must run vertically between the air terminal and earthing systems. Where this is impracticable, their course may be deviated to run at any angle up to and including horizontal.

Where it is necessary to run conductors horizontally over the upper surface of a structural protrusion, such as an exposed concrete slab, the conductor may run down vertically over the edge of the slab and return to the main structure, so that the distance between the upper and lower conductors exceeds one third of the length of the horizontal run. Looped down conductors are not permitted. Down conductors must not run over the underside of large overhangs which are less than 6 metres above ground level, or other areas where people are likely to be present during a thunderstorm.

External or internal metallic rainwater pipes may be used as down conductors providing these are of substantial section and are jointed by screwing one length into another or welding. Thin gauge galvanized steel pipes whose sections are held together by friction, rivets or screws must not form part of a lightning protection system.

5.6 Down conductors for reinforced concrete framed structures

The steel reinforcement of this type of structure may be used in place of down conductors. Where the reinforcing system is used, the air terminal system must be bonded to it at a maximum of 30 metre intervals using steel clamps. This bond may be achieved by clamping, with a steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor must terminate at a corrosion resistant metallic terminal such as Grade 316 stainless steel.

The reinforcing system of prefabricated concrete buildings must not be used unless special provision is made for bonding the various prefabricated sections together.

The terminals should be mounted flush with the face of the concrete. An aluminium alloy bond must then be taken from the air terminal system and be connected to the stainless steel terminal by means of a heavily tinned crimp lug for circular section aluminium, or a suitable bi-metallic joint in the case of flat section aluminium. A similar system must be used to bond the reinforcing system at ground level to the earthing system at points directly below the air terminal bonds. Here copper conductors must be used as the external bonding material.

Under no circumstances must copper, or other non-ferrous material be allowed to come into contact with steel reinforcing bars, as this may cause severe corrosion and subsequent structural damage. The lightning protection system must not be bonded to any part of the structure which is electrically isolated from the remainder of the building, i.e. cantilevered sections. In these circumstances, or where it is otherwise impracticable to use the reinforcing system, external down conductors must be installed as described in 5.5.

5.7 Down conductors for steel framed structures

Where the framework of a building is constructed of structural steel columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30 metres. The upper ends of the columns must be bonded to the air terminal systems and the lower ends to the earthing system.

5.8 Earthing by means of vertically installed rod type electrodes

Rod-type electrodes must be driven into the ground at a position directly below each down connector. The maximum earthing resistance of each electrode or number of electrodes bonded to any one down conductor shall not exceed $N \times 30$ ohms, where N equals the total number of down conductors which are bonded to a common air terminal system, or 200 ohms whichever is the lower value.

The minimum horizontal separating distance between rod-type electrodes bonded together must not be less than their installed depth. The upper ends of installed rod-type electrodes are to be terminated approximately 500 mm below finished surface level. A 50 mm² copper bonding conductor must be installed to run between each earthing electrode system and the lower ends of the adjacent down conductors. A joint is to be made between each of these bonding conductors and the down conductors at a position approximately 200 mm above finished ground level. These bonding conductors must be installed in P.V.C. conduit securely affixed to the wall (see 3.4). The length of this P.V.C. conduit must be approximately 600 mm and must be installed so that approximately 200 mm protrudes above ground level, the remainder being buried into the soil.

5.9 Earthing by means of metallic water mains

Where two or three down conductors are installed the water mains may serve as an earth terminal for one of these. Where three or more down conductors are installed the water mains may serve as an earth terminal for two of these. Regardless of whether the water mains are used as an earth terminal or not, the incoming metal water pipe must be bonded to the lightning protection earthing system underground.

5.10 Earthing by means of trench type electrodes

Where the soil conditions prevent the satisfactory installation of rod-type electrodes, a trench earth system must be installed. This method is to comprise a 50 mm² stranded copper conductor installed horizontally into a trench at a depth of 500 mm below finished ground level. The conductor is to follow the general outline of the structure to be protected and be installed 1 metre away from the outside walls. Where the building stands on rocky ground, the trench earth may be attached to the lower part of the wall in areas where rock protrudes through the soil. The conductor must, however, be buried wherever possible as described above.

Each down conductor must be bonded to the trench earth system as directly as possible by means of a copper conductor.

Trench earth systems must have a maximum earth resistance of 30 ohms. An isolated length of trench earth mat must be bonded to the down conductor system in such a way as to reduce the length of dead-ends to the minimum.

Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe must be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

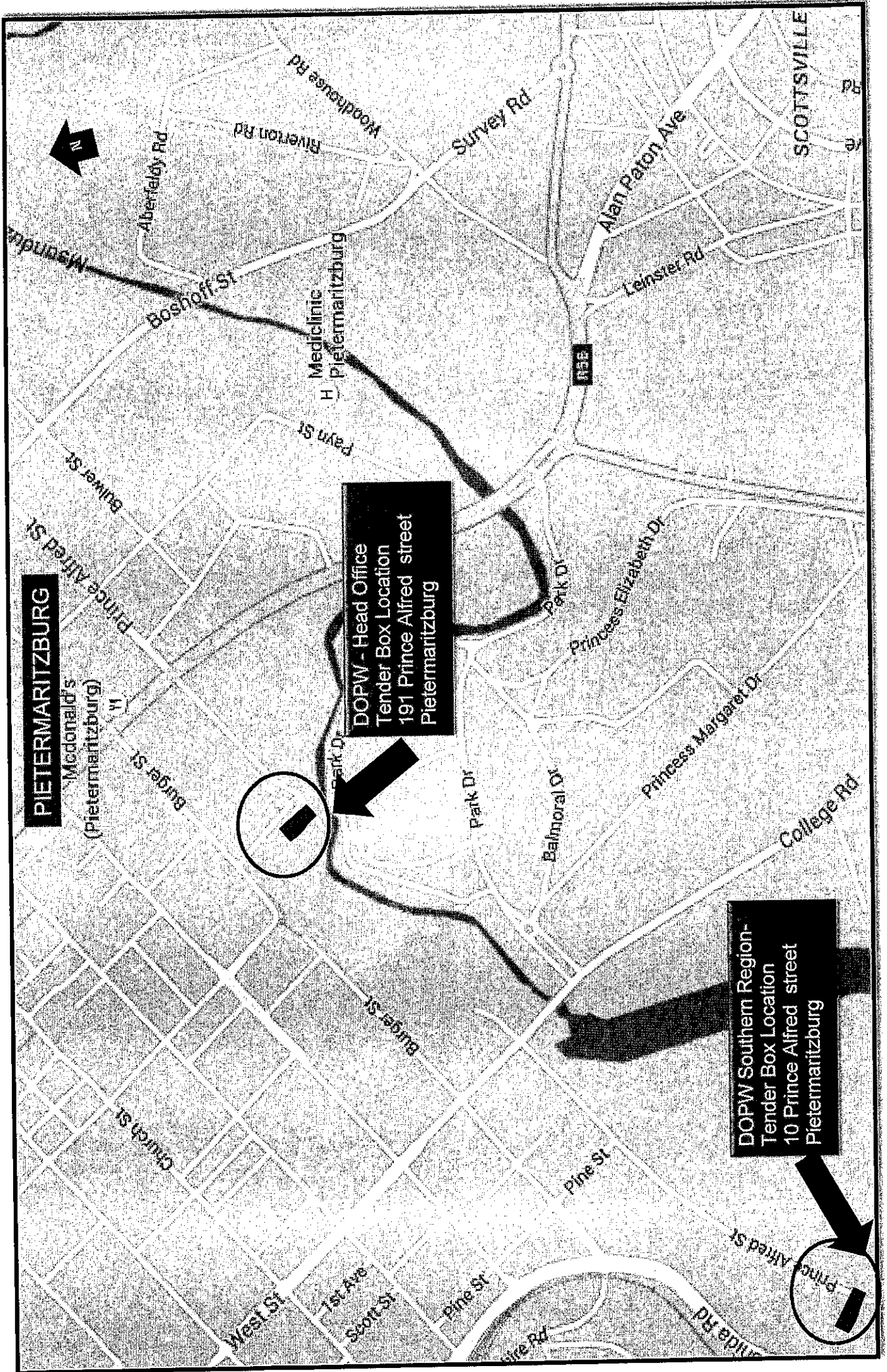
N.B. : The maximum useful length of a dead-ended trench earth is 80 metres.



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Map of Tender submission location





KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Joint Venture Agreement



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Annexure 5
Joint Venture Agreement
(March 2004)
(First Edition of CIDB document 1017)

1. **PREAMBLE**

This agreement is made and entered into by and between

of the first part and

of the second part and

of the third part.

(allow for additional parties as necessary).

Whereas the foregoing parties have resolved to form a Joint Venture under the title of

for the exclusive purposes of securing and/or executing the Contract to be awarded by
(name of Employer)

to the KZN Department of Public Works in respect of the following project:

for (brief description of Contract)

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK,
BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Now it is hereby agreed as follows :

2. **DEFINITIONS AND INTERPRETATION**

2.1 **Definitions**

The following words and expressions shall have the meanings indicated, except where the context otherwise requires. Defined terms and words are, in general, signified in the text of the Agreement by the use of capital initial letters, but the absence of such letters does not necessarily signify that a term, or word, is not defined.

'Agreement' means the agreement between the Members of the Joint Venture and includes this model form of agreement together with the Preamble, Specific Provisions, if any, Schedules 'A', 'B' and 'C' and any relevant Documents prepared prior to the signing of the Agreement and appended thereto.

'Contract' means the contract with the Employer for the supply of the Deliverables, for the purposes of securing and executing which, the Joint Venture has been formed.

'Deliverables' means the works and/or services, equipment, materials, goods, etc. to be furnished by the Joint Venture to the Employer in terms of the Contract.

'Document' means any written, drawn, typed, printed, or photographic material, which relates to the Agreement.

'Employer' means the person, or body, which is to award the Contract and will employ the Joint Venture if it is awarded the Contract.

'Joint Venture' means the joint venture formed by the Members in accordance with the Agreement.

'Management Committee' means the body established in terms of the Agreement to manage all aspects of the work of the Joint Venture in securing and executing the Contract and in meeting the provisions for the Agreement.

'Member' means a person, or body which, being a party to the Agreement, is a member of the Joint Venture.

'Member's Interest' means the proportion expressed as a percentage, which the total monetary value of all resources provided and contributions made by a Member towards the execution by the Joint Venture of the Contract bears to the total of such values by all Members and, unless otherwise indicated in the Agreement, represents the extent to which the Member participates in the fortunes of the Joint Venture.

'Representative' means the person representing a Member on the Management Committee.

'Schedules' means Schedules 'A', 'B' and 'C' which set out general, financial and other information relating to the Members and the obligations, duties, rights, risks and benefits arising from their participation in the Joint Venture.

'Specific Provisions' means the variations, if any, required to this standard form of agreement for the specific purposes of the Agreement.

2.2 Interpretation

Unless inconsistent with the context, an expression in the Agreement which denotes:

- any gender shall include the other genders
- a natural person shall include a juristic person and vice versa
- the singular shall include the plural and vice versa

2.3 Headings

The headings to clauses of the Agreement shall not be considered part thereof, nor shall the words they contain be taken into account in the interpretation of any clause.

2.4 Law

The Agreement shall be construed in accordance with and governed by the laws of the Republic of South Africa and the English language versions shall prevail.

2.5 Language

English shall be exclusively used by the Members in the preparation of Documents unless otherwise indicated.

2.6 Conflict between Agreement and Contract

Should any provision of the Agreement be in conflict with the terms of the Contract, the Agreement shall be amended to the approval of the Management Committee so as to eliminate the conflict.

3. JOINT VENTURE GENERAL

3.1 Establishment and Purpose

The Joint Venture established by the Members in terms of the Agreement is an unincorporated association with the exclusive purposes of securing and executing the Contract for the benefit of the Members.

3.2 Termination

The operation of the Joint Venture and the validity of the Agreement shall terminate if and when it becomes evident that the Joint Venture will not be awarded the Contract, or, if the Joint Venture secures the Contract, when all obligations and rights of the Joint Venture and the Members in connection with the Contract and the Agreement have ceased and/or been satisfactorily discharged.

Unless otherwise decided by the Management Committee, the Agreement shall not terminate if a Member changes its name, or is taken over by, or merged with, another body.

This agreement will terminate when any one of the Members resigns, are liquidated or opts out of this agreement and the Joint Venture will be in breach of contract with the Employer and their contract could be cancelled.

3.3 Exclusivity

Unless otherwise agreed by the Management Committee, or provided for in the Contract no Member shall engage in any activity related to the Contract other than as a Member of the Joint Venture and Members shall ensure that their subsidiaries and other bodies over which they have control comply with this requirement.

3.4 Participation of Members

Except as may otherwise be stipulated in the Agreement, each Member shall be responsible for all costs incurred by it prior to the date of inception of the Agreement.

Subsequent to the date of inception of the Agreement, each Member shall, participate in the operations, risks, responsibilities and fortunes of the Joint Venture including, inter alia, the provision of funding, sureties, guarantees, insurances, human and other resources and participation in profits and losses to the extents indicated in the Schedules. Participation in any aspect not covered in the Schedules shall, if an agreement cannot be reached between the Members, be to the same extents as indicated by the Members Interests.

3.5 Management

The affairs of the Joint Venture shall be directed and controlled by the Management Committee, as set out in Section 4 hereof.

- 3.6 Confidentiality
All matters relating to the Agreement and the Contract shall be treated by the Members as confidential and no such matter shall be disclosed to any third party without the prior written approval of the Management Committee.
- No Member shall be party to the dissemination of publicity relating to the Contract, or the Agreement, without the prior written approval of the Management Committee and the Employer.
- 3.7 Assignment
No Member shall cede, assign, or in any other way make over any of its rights, or obligations, under the Agreement without the prior written consent of the Management Committee.
- 3.8 Subcontracting
No Member shall subcontract any obligation, work or duty for which it is, itself, responsible in terms of the Agreement without the prior written consent of the Management Committee.
- 3.9 Variations to Agreement
No variation, modification, or waiver of any part of the Agreement shall be of any force, or effect, unless unanimously agreed by the Members and reduced to writing.
- 3.10 Liability
Each Member warrants that it will indemnify the other Members against all legal liabilities arising out of, or in connection with the performance of its obligations under the Agreement.
- It is acknowledged by the Members that they may be held jointly and severally liable in respect of claims against the Joint Venture by the Employer or third parties.
- 4. MANAGEMENT OF JOINT VENTURE**
- 4.1 General
The affairs of the Joint Venture shall be directed, controlled and managed by the Management Committee, which, within the terms of the Agreement and the Contract, shall have full authority to bind the Members in all matters relating to the affairs of the Joint Venture.
- Communication between the Joint Venture and the Employer, or third parties, relating to the Contract shall be conducted exclusively by the Management Committee, or by such person as it may delegate to perform this function.
- The Management Committee shall have the power to appoint a project manager and/or such other persons as it may see fit to appoint for the purpose of executing the Contract and may delegate such of its powers, responsibilities and duties as it may consider necessary, or desirable, to persons or bodies appointed or seconded for this purpose.
- Such administrative functions as are necessary to ensure the effective operation of the Management Committee shall be performed by its chairman.
- 4.2 Management Committee
- 4.2.1 Composition
The Management Committee shall, unless otherwise agreed by all the Members, consist of one Representative of each Member and each Member shall be obliged, at all times, to maintain a Representative on the Management Committee.
- Each member shall, not later than three working days after the signing of the Agreement, appoint its Representative and notify the other Members of the name and contact details of the Representative. Such Representative shall have the power to bind the Member that he represents in all matters relating to the execution of the Contract and the performance of the Agreement.
- A Member shall be entitled, after giving the other Members not less than three working days written notice of his intention to do so, appoint, remove and/or replace, an alternate who shall, at any meeting of the Management Committee from which the Representative whom he represents is absent, be vested with all rights and powers and subjected to all the obligations of the absent Representative.

The chairman of the Management Committee shall be the Representative of the Member which has the largest Member's Interest. If two, or more, Members have the same, largest Member's Interest, the chairmanship shall rotate between the Representatives of such Members at three monthly intervals, the order of rotation to be determined by ballot.

Notwithstanding the foregoing, the chairmanship of the Management Committee may be determined, or changed, at any time by unanimous decision of the Management Committee.

No remuneration shall be paid by the Joint Venture to Representatives or their alternates for serving on the Management

4.2.2 Meetings

Meetings of the Management Committee shall take place at such times and places as the Management Committee may determine, provided that the chairman shall convene a meeting of the Management Committee to be held not later than ten working days after he has been requested, in writing, by a Member to do so. Not less than five working days written notice of any meeting of the Management Committee shall be given to all Representatives and their alternates.

The Management Committee may permit, or invite, persons other than Representatives or alternates to attend any of its meetings, but such persons shall not have voting rights.

4.2.3 Decisions

Each Representative shall have one vote on the Management Committee and where, in terms of this clause, a casting vote is required, this shall be exercised by the chairman.

All decisions of the Management Committee shall, desirably, be unanimous. Accordingly, if unanimity cannot, initially, be achieved in regard to a decision, the meeting at which that decision is sought shall be adjourned for a period of 48 hours to enable Representatives to consult with their principals. If, on resumption of the adjourned meeting, unanimity can still not be achieved, the decision, provided it is not one requiring unanimity of the Members, shall be taken by majority vote and, in the event of a tie, the chairman shall exercise a casting vote.

A Member not satisfied with a majority decision of the Management Committee may declare a dispute, to be dealt with in terms of Clause 8 hereof, but the majority decision shall, nevertheless, be implemented with immediate effect.

Decisions of the Management Committee, whether taken at a meeting, or otherwise, shall be recorded in written minutes, which shall be distributed by the chairman to reach the Representatives not later than five working days after those decisions were taken. Such minutes shall be deemed to have been affirmed by the Representatives unless written notice of dissent is received by the chairman not later than three working days after receipt of the minutes by the Representative.

4.2.4 Powers and duties

The functions, responsibilities and powers of the Management Committee shall include, inter alia, those listed below:

- 4.2.4.1 Formulating overall policy in regard to the achievement of the objectives of the Joint Venture.
- 4.2.4.2 Managing the day to day affairs of the Joint Venture.
- 4.2.4.3 Monitoring, directing and co-ordinating the activities of the Members to ensure that the objectives of the Joint Venture are achieved and that the obligations and responsibilities of the individual Members are met.
- 4.2.4.4 Monitoring and controlling the financial affairs of the Joint Venture and ensuring that proper books of account and financial records relating to affairs of the Joint Venture are maintained in an approved form and submitted to the Management Committee for approval at regular intervals, which shall not be longer than one month.
- 4.2.4.5 Determining the necessity for and the details of any changes in the duties and responsibilities of Members provided that any resulting changes in Members' Interests shall be unanimously approved by the Members.
- 4.2.4.6 Determining the terms and conditions of employment of personnel and the emoluments applicable to staff seconded to the Joint Venture by the Members.
- 4.2.4.7 Controlling and approving the appointment of all subcontractors.
- 4.2.4.8 Procuring, after the completion of the Contract and the release of all bonds, guarantees and sureties given in respect of the performances of the Joint Venture and the Members, the preparation and auditing of a final set of accounts, on the basis of which the final profits, or losses, attributable to the individual Members shall be determined and any necessary adjustments effected.

5 RESOURCES OF JOINT VENTURE

The resources to be utilised by the Joint Venture in securing and executing the Contract shall, insofar as these are to be provided directly by the Members, be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Member's Interests are not, except with the unanimous approval of the Members, affected thereby.

Similarly, specific areas of responsibility of the Members for the performance of work and the provision of facilities shall be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Members' Interest are not, except with the unanimous approval of the Members, affected thereby.

5.1 **Schedule 'A' (General)**

Schedule 'A' shall contain general information relating to the Joint Venture including, inter alia, the following :

1. The Employer's name and address.
2. A brief description of the Contract and the Deliverables.
3. The name, physical address, communications addresses and domicilium citandi et executandi of each Member and of the Joint Venture.
4. The Members' Interests.
5. A statement indicating whether, or not, Specific Provisions apply to the Agreement.
6. A schedule of insurance policies which must be taken out by the Joint Venture and by the individual Members.
7. A Schedule of sureties, indemnities and guarantees that must be furnished by the Joint Venture and by the individual Members.
8. Details of the persons, who, in the event of failure by the Members to reach agreement on the appointments of mediator and arbitrator, will nominate appointees to these positions in terms of Clauses 8.2 and 8.3.

5.2 **Schedule 'B' (Financial)**

Schedule 'B' shall contain information regarding the financial affairs of the Joint Venture including, inter alia, the following :

1. The working capital required by the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the individual Members from time to time.
2. The banking accounts that are to be opened in the name of the Joint Venture and the manner in which these are to be operated.
3. The rates of interest that will be applicable to amounts by which Members are in debit, or credit, to the Joint Venture.
4. The names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.
5. The intervals at which interim financial accounts and forecasts will be prepared for approval by the Management Committee.
6. Insofar as not covered in Schedule 'C', the basis on which contributions of various types by the Members towards the work of the Joint Venture in securing, executing, managing and satisfactorily completing the Contract, will be valued.
7. The basis on which profits and/or surplus cash will, if available from time to time, be distributed to Members.
8. The basis upon which losses, if any, are to be apportioned to Members.

5.3 **Schedule 'C' (Contributions by Members)**

Schedule 'C' shall set out the contributions of various types, other than cash, that will be made by the individual Members towards the work and obligations of the Joint Venture and shall, as far as possible, indicate the monetary values to be placed on such contributions, which may include, inter alia, the following :

1. Staff seconded to the Joint Venture.
2. Work carried out and services provided to, or on behalf of, the Joint Venture.
3. Plant, equipment, facilities etc. made available for use by the Joint Venture.
4. Materials and goods supplied to, or on behalf of, the Joint Venture.
5. Licences, sureties, guarantees and indemnities furnished to, or on behalf of, the Joint Venture.
6. Joint Venture Disclosure form required for the Contract.

6. **BREACH OF AGREEMENT**

If a Member breaches any material provision of the Agreement, or delays or fails to fulfil its obligations in whole, or in part, and does not remedy the situation within fourteen calendar days of receipt of notice from the Management Committee, or another Member, to do so, the other Members shall have the right, without prejudice to any other rights arising from the default, to summarily terminate the Agreement and re-assign the defaulting Member's rights and obligations in the Joint Venture as they see fit and withhold any moneys due to the defaulting member by the Joint Venture.

Each Member shall indemnify the other Members against all losses, costs and claims which may arise against them in the event of the Agreement being terminated as a result of breach of the Agreement by the said Member.

7. **INSOLVENCY OF MEMBER**

Should a Member be placed in liquidation, or under judicial management, whether provisionally or finally, or propose any compromise with its creditors, the other Members shall be entitled to proceed in terms of Clause 6, as if the Member had breached the Agreement.

8. DISPUTES

8.1 Settlement

The Members shall negotiate in good faith and make every effort to settle any dispute, or claim, that may arise out of, or relate to, the Agreement.

If agreement cannot be reached, an aggrieved Member shall, if he intends to proceed further in terms of Clause 8.2 hereof, advise all other Members in writing that negotiations have failed and that he intends to refer the matter to mediation in terms of Clause 8.2.

8.2 Mediation

Not earlier than ten working days after having advised the other Members, in terms of Clause 8.1, that negotiations in regard to a dispute have failed, an aggrieved Member may require that the dispute be referred, without legal representation, to mediation by a single mediator.

The mediator shall be selected by agreement between the Members, or, failing such agreement, by the person named for this purpose in Schedule 'A'. The costs of the mediation shall be borne equally by all Members.

The mediator shall convene a hearing of the Members and may hold separate discussions with any Member and shall assist the Members in reaching a mutually acceptable settlement of their differences through means of reconciliation, interpretation, clarification, suggestion and advice. The Members shall record such agreement in writing and thereafter they shall be bound by such agreement.

The mediator is authorised to end the mediation process whenever in his opinion further efforts at mediation would not contribute to a resolution of the dispute between the Members.

8.3 Arbitration

Where a dispute or claim is not resolved by mediation, it shall be referred to arbitration by a single arbitrator to be selected by agreement between the Members or, failing agreement, to be nominated by the person named for this purpose in Schedule 'A'.

The Member requiring referral to arbitration shall notify the other Members, in writing, thereof, not later than thirty calendar days after the mediator has expressed his opinion, failing which the mediator's opinion shall be deemed to have been accepted by all Members and shall be put into effect.

Arbitration shall be conducted in accordance with the provisions of the Arbitration Act No. 42 of 1965, as amended, and in accordance with such procedure as may be agreed by the Members or, failing such agreement, in accordance with the rules for the Conduct of Arbitrations published by the Association of Arbitrators and current at the date that the arbitrator is appointed.

The decisions of the arbitrator shall be final and binding on the Members, shall be carried into immediate effect and, if necessary, be made an order of any court of competent jurisdiction.

9. DOMICILIUM

The Members choose domicilium citandi et executandi for all purposes of and in connection with the Agreement as stated in Schedule 'A'. A Member shall be entitled to change his domicilium from time to time, but such change shall be effective only on receipt of written notice of the change by all other Members.

Member No. 1

Thus done and signed at _____ this _____ day of _____ 20____

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____ As witnesses 2. _____

Member No. 2

Thus done and signed at _____ this _____ day of _____ 20____

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

Member No. 3

Thus done and signed at _____ this _____ day of _____ 20 _____

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

[Allow for additional parties as necessary].



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Health and Safety Specification

Annexure 6

Occupational Health and Safety Specification

(OHSE SPEC)



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Project Name:

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT:
URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK,
BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

Project Code:

059789

Agent Name:

K.R Mncawbe

Region:

Southern Region

District:

Pietermaritzburg

Ward no.:

27

Annexure C

CONTRACTOR'S SAFETY, HEALTH AND ENVIRONMENTAL DECLARATION FOR TENDERS

INTRODUCTION

In terms of *Construction Regulation 5(1)(h)* of the *Construction Regulations of February 2014* a Contractor may only be appointed to perform construction work if the Client is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the *Occupational Health and Safety Act, Act 85 of 1993* and the *Construction Regulations of February 2014*. In line with this requirement the Contractor is required to read through this document carefully, sign it and submit it with his/her Tender.

DECLARATION

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification attached in the tender document.
2. I hereby declare that my company and its employees has the necessary competency and resources to safely carry out the construction work under this contract in compliance with the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification.
3. I hereby confirm that adequate provisions has been made in my tender to cover the cost of all Safety, Health and Environmental duties and responsibilities imposed on me by the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification.
4. I confirm that I may not commence with any part of construction work under the contract until my Construction Safety, Health and Environmental Plan has been approved in writing by the Client.
5. I hereby confirm that copies of the following documentation will be kept on site for viewing and inspection purposes for the duration of the construction work:
 - a) Client's Construction Safety, Health and Environmental Specification
 - b) Approved Construction Safety, Health and Environmental Plan
 - c) Occupational Health and Safety Act, Act 85 of 1993, and
 - d) Construction Regulations of February 2014.
6. I agree that my failure to complete and execute this declaration to the satisfaction of the Client will mean that I am unable to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and Construction Regulations 2014, and accept that my tender will be rejected.

Signature:.....

Date:.....

Department of Public Works
Occupational Health and Safety Specification



KWAZULU-NATAL PROVINCE
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**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Health and Safety Bill of Quantities

HEALTH AND SAFETY IMPLEMENTATION COSTING

Contractor to give a breakdown of his Health and Safety costs on this sheet.

ITEM	DESCRIPTION	UNIT	QUAN- TITY	MONTHS (Indicative)	RATE	AMOUNT
			(a)		(b)	(a) x (b)
1	MEDICALS					
1.1	Pre-employment medical	Nr.	-			
1.2	Re-medicals - yearly	Nr.	-			
	TOTAL					
2	PERSONAL PROTECTIVE EQUIPMENT					
2.1	Overalls	Nr.				
2.2	Hard Hats	Nr.				
2.3	Safety boots/shoes	Nr.				
2.4	Gloves	Nr.				
2.5	Gumboots steel toe cap	Nr.				
2.6	Safety glasses	Nr.				
2.7	Reflector Bibs	Nr.				
2.8	Barricading Material	M				
2.9	Dust masks	Box 20				
	TOTAL					
3	FIRE FIGHTING					
3.1	Fire extinguishers - 4.5Kg	Nr.				
3.2	Surveys - Annual Service	Nr.				
	TOTAL					
4	HEALTH AND SAFETY PERSONNEL					
4.1	Safety Manager	Nr.				
4.2	Safety Officer	Nr.				
4.3	Construction Phase Safety, Health, Environmental and Waste Management Plan	Nr.				
	TOTAL					
5	FACILITIES					
5.1	Provision of ablution facilities	Nr.				
5.2	Service and maintenance of ablution facilities	Nr.				
5.3	Provision of eating areas	Nr.				
5.4	Cleaning of Lay down and other storage areas	Nr.				
5.5	Wash hand basin	Nr.				
5.6	Hot and Cold running water	Nr.				
5.7	Degreasing & Toilet soap	Nr.				
	TOTAL					
6	FALL PREVENTION / PROTECTION					
6.1	Safety harnesses with double lanyards	Nr.				
6.2	Safety harnesses with Scaffold hooks	Nr.				
6.3	Lifelines and vertical fall arrest systems	Nr.				
6.4	Scaffolding – material, erection and inspection (Estimate for project)	Nr.				
6.5	Temporary hand railing material and kick flats	Nr.				
6.6	Chin Straps	Nr.				
	TOTAL					

7	FIRST AID					
7.1	Replenishment of boxes and other supplies	Nr				
	TOTAL					
8	TRAINING					
8.1	SHE Representative	Nr.				
8.2	First Aid Level 1	Nr.				
8.3	Fire Fighting	Nr.				
	TOTAL					
9	SIGNAGE					
9.1	All Signage as required by Law, regulatory, warning and information	Nr.				
9.2	Posters for awareness	Nr.				
	TOTAL					
10	ELECTRICAL					
10.1	Replacement of Locks required for lockouts	Nr.				
10.2	Replacement of tags	Nr.				
10.3	Replacement for Permit books	Nr.				
10.4	Replacement of Callipers	Nr.				
	TOTAL					
11	OTHERS (Project Specific)					
11.1		Nr.				
	TOTAL					
GRAND TOTAL TO BE CARRIED TO THE PRELIMINARIES AND GENERAL IN BILL OF QUANTITIES						

Health & Safety Bill of Quantities					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Hi Visibility conti-suit	Annual/ As required or needing replacing			R-
2	Hi- Visibility T-Shirts	Annual/ As required or needing replacing			R-
3	Steel Toe-Capped Safety Boots	Annual/ As required or needing replacing			R-
4	Hi-Visibility Safety Vest	Annual/ As required or needing replacing			R-
5	SABS Approved Hard Hat	Annual/ As required or needing replacing			R-
6	Hi-Viability Rain Suits	Annual/ As required or needing replacing			R-
7	Steel Toe Capped Gumboots	Annual/ As required or needing replacing			R-
8	Dust Masks (Stipulate FFP):	Annual/ As required or needing replacing			R-
9	Safety Glasses	Annual/ As required or needing replacing			R-
10	Gloves (Stipulate Type):	Annual/ As required or needing replacing			R-
11	Safety Harnesses	Annual/ As required or needing replacing			R-
12	Other:				R-
13	Trainings:				R-
14	Safety Representative Training	Once off			R-
15	First Aider Training	Once off			R-
16	Fire Fighting Training	Once off			R-
17	Legal liability	Once off			R-
18	H&S Salaries:				R-
19	CHS Manager	Monthly			R-
20	CHS Officer	Monthly			R-
21	Other:				R-
22	Specific H&S Items:				R-
23	Medicals	Pre-placement, Annual & Exit			R-
24	Spill Kit	Once off			R-
25	Accommodation of Traffic as per Client tender BOQ	Once off			R-
26	Inductions	Annual			R-
27	First Aid Kits	Once off			R-
	COVID-19				R-
28	Fire Extinguishers	Once off			R-
29	Ablutions	Once off			R-
30	Barrier Netting	Once off			R-
31	Appointment of AIA for asbestos	Not applicable			R-
32	Asbestos Management plan	Not applicable			R-
33	Asbestos removal by competent asbestos contractor	Not applicable			R-
34	Disposal of products containing asbestos	Not applicable			R-
35	Disposal of hazardous chemicals and contaminated soil	Once off			R-
	scaffoldings				
	Ladders				
36	Safety Signage:				R-
37	Construction Boards	Once off			R-
38	Fire Extinguisher	Once off			R-
39	Directional signs	Once off			R-
40	Emergency Assembly point	Once off			R-
41	No Smoking	Once off			R-
42	Ladies and Men's Toilets (Gender sign)	Once off			R-
43	No Naked Flames	Once off			R-
44	waterproofing specialist				R-

45	other				
46					
Principal Contractor CHS					



KWAZULU-NATAL PROVINCE
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**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Builders Lien Agreement

WAIVER OF CONTRACTOR'S LIEN

DEFINITIONS

Contractor: _____

Employer: Head: Public Works (KZN Department of Public Works: Province of KwaZulu-Natal)

Agreement: GCC FOR CONSTRUCTION WORKS - SECOND EDITION 2010

Works (description): **SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Site: **INKOSI MHLABUNZIMA, 172 Burger Street, Pietermaritzburg, Southern Region: Umgungundlovu District Municipality: Msunduzi Municipality**

AGREEMENT

The Contractor waives, in favour of the Employer, any lien or right of retention that is or may be held in respect of the Works to be executed on the Site

Thus done and signed at _____ on _____ [Date]

Name of signatory

Capacity of signatory

As witness

For and on behalf of the contractor who by signature hereof warrants authorisation hereto



KWAZULU-NATAL PROVINCE
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BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

EPWP Scope of work

SCOPE OF WORKS IN RESPECT OF WORK RELATING TO THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP)

Project title:	SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES		
Project Code:	059789	EPWP NO:	N/A

Introductory notes:

- The works, or parts of the works will be constructed using labour-intensive methods only in terms of this specification. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.
- Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

DESCRIPTION OF THE WORKS

Employer's objectives

The employer's objectives are to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

Labour-intensive works

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work.

LABOUR-INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 "National Certificate: Supervision of Civil Engineering Construction Processes" and Site Agent/ Manager at NQF level 5 "Manage Labour-Intensive Construction Processes" or equivalent QCTO qualifications (See Appendix C). at NQF outlined in Table 1. (See GUIDELINES FOR THE IMPLEMENTATION OF LABOUR-INTENSIVE INFRASTRUCTURE PROJECTS UNDER THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) -THIRD EDITION 2015)

Emerging contractors shall have personally completed, or be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or be registered on a skills programme for the NQF level 2 unit standards or NQF level 4 unit standards. Table 1: Skills programme for supervisory and management staff.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour-Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	
Personnel	NQF level	Unit standard titles	Skills programme description

Foreman/supervisor	4	Implement Labour-Intensive Construction Systems and Techniques	This unit standard must be completed, and
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	
Site Agent /Manager (i.e. the contractor's most senior representative that is resident on the site)	5	Manage Labour-Intensive Construction Processes	Skills Programme against this single unit standard
Details of these skills programmes may be obtained from the CETA ETQA manager (e-mail :gerard@ceta.co.za , tel: 011-265 5900)			

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

- 1.1 Requirements for the sourcing and engagement of labour.
 - 1.1.1 Unskilled and semi-skilled labour required for the execution of all labour-intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
 - 1.1.2 The rate of pay set for the SPWP per task or per day will be an acceptable rate determined by the Department of Labour.
 - 1.1.3 Tasks established by the contractor must be such that:
 - a) the average worker completes 5 tasks per week in 40 hours or less; and
 - b) the weakest worker completes 5 tasks per week in 55 hours or less.
 - 1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.
 - 1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour-intensive
 - a) where the head of the household has less than a primary school education;
 - b) that have less than one full time person earning an income;
 - c) where subsistence-agriculture is the source of income.
 - d) that who are not in receipt of any social security pension income
 - 1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of unskilled and semi-skilled workers is in the following proportions:
 - a) 55% women;
 - b) 55% youth who are between the ages of 18 and 35; and
 - c) 2% on persons with disabilities.
- 1.2 Specific provisions pertaining to SANS 1914-5
 - 1.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.
 - 1.2.2 Contract participation goals
 - 1.2.2.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.
 - 1.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.
 - 1.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.
 - 1.2.4 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.
 - 1.2.5 Variations to SANS 1914-5

- 1.2.5.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.
- 1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of targeted labour

- 1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.
- 1.3.2 The cost of the formal training of targeted labour, will be funded by the local office of the Department of Labour. This training will take place as close to the project site as practically possible. The contractor must access this training by informing the relevant regional office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The Employer and the Department of Public Works (Fax: 012 3258625/ EPWP Unit, Private Bag X65, Pretoria 0001) must be furnished with a copy of this request.
- 1.3.3 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.
- 1.3.4 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of the above.
- 1.3.5 Proof of compliance with the above requirements must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

GENERIC LABOUR-INTENSIVE SPECIFICATION

1 Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) trenches having a depth of less than 1.5 metres
- b) storm water drainage
- c) low-volume roads and sidewalks

2 Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

3 Hand excavateable material

Hand excavateable material is material:

a) Granular materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) Cohesive materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note:

- 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
- 2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60 degrees with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation.	stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

4 Trench excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

5 Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

- to 90% Proctor density;
- such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

6 Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

7 Clearing and grubbing

Grass and small bushes shall be cleared by hand.

8 Shaping

All shaping shall be undertaken by hand.

9 Loading

All loading shall be done by hand, regardless of the method of haulage.

10 Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

11 Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

12 Spreading

All material shall be spread by hand.

13 Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

14 Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

15 Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

16 Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.



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BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Attendance Register - Infrastructure and Other projects



EXPANDED PUBLIC WORKS PROGRAMME

The Attendance Register for on-site Workers

Reporting month: _____

Cell No: _____

Surname: _____

First Name: _____

Project Name: **SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF
LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

Project Code: **059789**

Tender No **ZNTM01182W**

IDENTITY NUMBER: _____

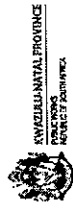
Day	Date	Time In	Signature	Time Out	Signature	Report On Any Formal Training Provided In The Reporting Month
WEEK 1						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 2						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 3						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 4						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 5						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
Total Days worked						



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BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

EPWP Data Collection tool for Phase 3 system



KZN PUBLIC WORKS
Monthly Data collection for LOCAL Labour

Project Code: **059789**

Project location name (area): _____

Name of Contractor: _____

Name of Project: _____

Reporting month: _____

Project location (Ward No.): _____

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS
AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

No.	First Name	Initial	Surname	ID number	Beneficiary Details				Experience/Literacy										Location Details				Household Details		
					Gender F/M	D.O.B	Disability Y/N	Start Date on the current month	End Date on the current month	Total days worked	Job description	Registered on UIF (Y/N)	Registered with COIDA (Y/N)	Are you receiving any Gov grants? (Y/N)	1st Language	Other Language 1	Other Language 2	Education Level (See Codes below)	Highest Level of Education	Address	Ward No.	Cell No.	Nationality	No. of people in Household	No. of Dependents in Household
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Print this form on the verso of the form (A 2) on the second sheet of paper

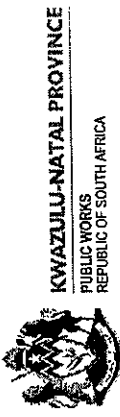
* Education Levels - use the codes (1,2,3) on the excel spreadsheet
 o (1) Unknown (3) Grade 1-3 (Sub A - Std 1)
 o (2) No School (4) Grade 4 (Std 2) ABET 1

(5) Grade 5-6 (Std 3-4) ABET 2 (7) Grade 9 (Std 7) ABET 4 (9) Grade 12 (Std 10)
 (6) Grade 7-8 (Std 5-6) ABET 3 (8) Grade 10-11 (Std 8-9) (10) Post Matric

Contractor sign: _____
 Designation: _____
 Date: _____
 Contact no: _____

DPW Official/Consultant sign: _____
 Designation: _____
 Date: _____
 Contact no: _____

EPWP Official sign: _____
 Designation: _____
 Date: _____
 Contact no: _____



KZN PUBLIC WORKS

Worker payment capture form for LOCAL Labour

Name of Contractor: _____ Project Code: **059789**

Name of Project: **SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Reporting month: _____

Payment Upload

No.	First Name	Initials	Surname	Identity No.	D.O.B	Job Description	Daily Wage Rate	Total Paid Days	Total Amount Paid	Total days Worked Days
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Contractor sign: _____ DPW Official/Consultant sign: _____ EPWP Official sign: _____
Designation: _____ Designation: _____ Designation: _____
Date: _____ Date: _____ Date: _____
Contact no: _____ Contact no: _____ Contact no: _____



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

KZN PUBLIC WORKS
Worker Training capture form for LOCAL Labour

Name of Contractor: _____
Name of Project: _____

Project Code: _____

059789

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT:
URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE BLOCK,
BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING
BALCONIES**

Reporting month: _____

Training

No	Name	Surname	ID No.	Job description	Course Name	Was training Accredited or Non-accredited by a relevant SETA	Start date on current month	End date on current month	Training Days Paid	Training Days Not Paid	Total Number of Training Days	Cost per trainee	Is training complete or on-going	Name of Training Provider
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

Contractor sign: _____

Designation: _____

Date: _____

Contact no: _____

DPW Official/Consultant sign: _____

Designation: _____

Date: _____

Contact no: _____

EPWP Official sign: _____

Designation: _____

Date: _____

Contact no: _____



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

Registration and Business form

BUSINESS PLAN

Reference No	
Profile ID	
Project Name	
Project Details	
Project Name	
Project Reference Number	
Project description	
Project Start Date	
Project End Date	
Estimated Budget	
Project Location	
Province	
District/Metro Municipality	
Local Municipality/Metro Region	
Latitude (in decimal format)	
Longitude (in decimal format)	
Public Body Details	
Public body sphere	
Reporting public body that is the project owner (and will report on the project)	
Implementing public body type	
Public body that will implement the project	
IDP reference number allocated to the project	
EPWP Details	
EPWP Sector	
EPWP Program	
EPWP Sub programme	
Budget Amount	
April 2014/March 2015	
April 2015/March 2016	
Total Budget Amount	
Wages	
UIF	
COIDA	
Training	
Administration	
Equipment and materials	
Other	
Describe other	
Outputs and Training	
Output	
Description	
Target Quantity	
Number of persons to be trained	
Contact person	
Title	
Initials	
First Name	
Surname	
Email	
Tel (Office)	
Fax Number	
Cell Number	
Physical Address 1	
Physical Address 2	
Physical Address 3	
Physical Address 4	
Postal Address 1	
Postal Address 2	
Postal Address 3	
Postal Address 4	



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

LOCATION

Location

Locality Name	
Municipality	
Subplace	
Ward	
Government Facility	
Latitude	
Longitude	
Physical Address/Location	



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF LEAKS AT EXECUTIVE
BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES**

DECANTING PLAN

Architecture, Property Development, Project & Construction Management

38 McKay Drive, Pietermaritzburg
P. O. Box 19932, Ashburton, 3213, Tel: 033-3261122
Cell: 072 701 7149, E-mail: agape@agapecdc.co.za

28 April 2023

The Department of KZN Public Works
Professional Services
Private Bag X9153
PIETERMARITZBURG
3200

Attention: Mr. Madubela
KZN Public Works
Tel: (033) 897 1300

**WIMS059789: SOUTHERN REGION: KZN DEPARTMENT OF TRANSPORT: URGENT REPAIRS TO ROOF
LEAKS AT EXECUTIVE BLOCK, BLOCK A, BLOCK B, BLOCK C AND ENCLOSING OF EXISTING BALCONIES
- DECANTING PROPOSED PLAN.**

NB: Decantation and construction milestones can only be finalized in agreement with the Contractor as part of the Contractor's Hoarding and Works Execution Plan. This proposal assumes that the work in all Blocks will be done as parallel as possible. The proposal is only for locations that will have working staff.

The proposal is based on the assumption that an entire floor is vacated each time to allow for activities like fumigation, total isolation for personal safety and security, etc.

EXECUTIVE BLOCK (APPROXIMATELY 7 MONTHS)

1. Fourth Floor to be vacated for approximately 3 MONTHS. Only 3 people are currently working from there. The floor can temporarily take (during the Construction when this floor is finished) approximately 12 - 16 staff members based on open plan working arrangement, shared office arrangement, CEO's office retained as is.
2. Third Floor to be vacated for 1 MONTH which is approximately 10 staff members. They could be accommodated to the Fourth floor.
3. Second Floor to be vacated for 1 MONTH which is approximately 10 staff members. They could be accommodated to the Fourth floor.
4. First Floor to be vacated for 1 MONTH which is approximately 20 staff members. They could be accommodated to the Fourth floor with tighter space allocation especially if they are mostly administrative staff who need basically desktop computers.
5. Ground Floor 1 MONTH – only work of emergency staircases is in scope. Impact on parking should be minimal, just one bay at worse.

C-BLOCK (APPROXIMATELY 12 MONTHS)

1. Third Floor to be vacated for approximately 5 MONTHS. We assume it is vacated. The floor can temporarily take (during the Construction when this floor is finished) approximately 30 - 40 staff members based on open plan working arrangement and shared office arrangement.
2. Second Floor – there is no scope of work for this floor.

3. First Floor to be vacated for 2 MONTHS. We assume it will be vacated to the Fourth floor. The floor can temporarily take (during the Construction when this floor is finished) approximately 30 - 40 staff members based on open plan working arrangement and shared office arrangement.
4. Ground Floor to be vacated for 5 MONTHS. . We assume it will be vacated to the Fourth floor. The floor can temporarily take (during the Construction when this floor is finished) approximately 30 - 40 staff members based on open plan working arrangement and shared office arrangement.

A-BLOCK (APPROXIMATELY 7 MONTHS)

1. Roof level & Basement – Decanting not applicable/ no staff member accommodated in the area.
2. Third Floor to be vacated for 3 MONTHS. The floor currently accommodates approximately 10 staff members which will have to be accommodated temporarily in other office blocks, such as finished C-Block.
3. SECURITY OFFICE – 1 MONTH. Temporarily switch between pedestrian window and vehicular entrance where both share.

Yours faithfully



SB. Mkhize

Managing Director