



public works
& infrastructure

Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE

TENDER DOCUMENT FOR

**DEPARTMENT OF DEFENCE: JOINT SUPPORT BASE: GARRISON
FINANCE OFFICE: UPGRADES AND REFURBISHMENT**

NAME OF TENDERER.....

CSD NUMBER

**Advert date: 03 July 2024
Briefing date : 22 July 2024
Time: 11H00
Closing Date: 07 August 2024
Closing time: 11H00**

AVN Gebou Building, 251 Nana Sita
St, Pretoria Central, Pretoria, 0002

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Department: Public Works &
Infrastructure
(Pretoria Regional Office)

**DEPARTMENT: PUBLIC WORKS AND
INFRASTRUCTURE
TENDER DOCUMENT
FOR
DEPARTMENT OF DEFENCE: JOINT SUPPORT
BASE: GARRISON FINANCE OFFICE:
UPGRADES AND REFURBISHMENT**

DEPARTMENT: PUBLIC WORKS & INFRASTRUCTURE

AVN BUILDING

CORNER OF NANA SITA & THABO SEHUME STREETS

PRETORIA

0001

PROJECT MANAGER: KGAUGELO LEDWABA

TELE: 012 406 1654/ 060 868 7518

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VOLUME1: TENDERING PROCEDURES

T1.1 Tender Notice and Invitation to Tender

PA-04 (EC): NOTICE AND INVITATION TO TENDER

THE DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE INVITES TENDERS FOR:

Project title:	Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office
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Tender no:	PT24/019	Reference no:	
Advertising date:	03 July 2024	Closing date:	07 August 2024
Closing time:	11H00	Validity period:	84 Calendar days

1. REQUIRED CIDB GRADING

It is estimated that tenderers should have a CIDB contractor grading designation of **5 GB** or **5 GB*** or higher.

** Delete "or select tender value range select class of construction works" where only one class of construction works is applicable*

It is estimated that potentially emerging enterprises should have a CIDB contractor grading designation of **Not applicable Not applicable PE** or **Not applicable Not applicable PE*** or higher.

** Delete "or select tender value range select class of construction works PE" where only one class of construction works is applicable*

2. FUNCTIONALITY CRITERIA APPLICABLE YES ☒ NO ☐

Note 1: Failure to meet minimum functionality score will result in the tenderer being disqualified.

Functionality criteria ¹ :	Weighting factor:												
<p>1. Work Experience on Project Completed</p> <p>The bidder must submit with the tender the following:</p> <p>Appointment letter on a client letterhead and Practical Completion Certificates or First Delivery Certificate and contactable references on the referenced projects. Comparable / relevant (similar in nature and value) in Building works projects ranging from R6 000 000.00 and above per project, the work experience should show general building work which includes electrical, mechanical, structural.</p> <p>The referenced projects must have been successfully completed by the company within the past ten (10) years. (NB - References, contact details, and completion certificates must be provided on similar works).</p> <table> <tr> <td>1.1). Five (5) or more successful completed projects</td><td>= 5 points</td></tr> <tr> <td>1.2). Four (4) successful completed projects</td><td>= 4 points</td></tr> <tr> <td>1.3). Three (3) successful completed projects</td><td>= 3 points</td></tr> <tr> <td>1.4). Two (2) successful completed projects</td><td>= 2 points</td></tr> <tr> <td>1.5). One (1) successful completed projects</td><td>= 1 points</td></tr> <tr> <td>1.6). Zero (0) completed projects</td><td>= 0 points</td></tr> </table>	1.1). Five (5) or more successful completed projects	= 5 points	1.2). Four (4) successful completed projects	= 4 points	1.3). Three (3) successful completed projects	= 3 points	1.4). Two (2) successful completed projects	= 2 points	1.5). One (1) successful completed projects	= 1 points	1.6). Zero (0) completed projects	= 0 points	30%
1.1). Five (5) or more successful completed projects	= 5 points												
1.2). Four (4) successful completed projects	= 4 points												
1.3). Three (3) successful completed projects	= 3 points												
1.4). Two (2) successful completed projects	= 2 points												
1.5). One (1) successful completed projects	= 1 points												
1.6). Zero (0) completed projects	= 0 points												

¹The points allocated to each functionality criterion should not be generic but should be determined separately for each tender on a case by case basis.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

<p>2. Bank Rating</p> <p>The bidder must submit with tender an original stamped bank rating letter or a certified copy of such a letter which is not older than six months on the closing of the tender. The Bid Evaluation Committee will verify all the information provided by the bidder in line with the Functionality Criteria.</p> <p>2.1). Rating A = 5 points 2.2). Rating B = 4 points 2.3). Rating C = 3 points 2.4). Rating D = 2 points 2.5). Rating E = 1 point</p>	<p>15%</p>
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<p>3. Human Resources - Key Personnel</p> <p>The bidder must provide suitable qualifications / certificates and ID's and they must be originally certified and not older than 6 months from the date of tender closing. Proof of work force to execute the project by attaching CV's, originally certified ID copies, and qualification certificates (if registration is not yet finalised, proof of registration is acceptable). The Bid Evaluation Committee will verify all the information provided by the bidder in line with the Functionality Criteria.</p> <p>The company must submit a project-specific organogram that reflects the key personnel assigned to this project with their experience in the built environment as per the below among others the mentioned key staff requirements.</p> <p>The key personnel must be employees of the company if not, an undertaking should be attached from the person who will be involved for the duration of the project and assigned to the project on a full-time basis.</p> <p>NOTE: The below will be evaluated as a cluster, any omission of any key staff will result in a zero score.</p> <p>NB: Calculating scores of experience to the lowest years. All the personnel will be grouped according to their respective experience clusters. If these individuals fall into different clusters, the evaluation committee will allocate points based on the cluster corresponding to the personnel with the lowest years of experience.</p> <p>3.1). For the bidder to be allocated 5 points, the bidder must have the following:</p> <p>3.1.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 10 years or more experience (post-registration).</p> <p>3.1.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 10 years or more experience (post-qualification).</p> <p>3.1.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma or higher with a minimum of 5 years of experience (post-qualification).</p> <p>3.1.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 5 years of experience or higher (post-registration).</p> <p>3.2). For the bidder to be allocated 4 points, the bidder must have the following:</p> <p>3.2.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 8 years or more and below 10 years of experience (post-registration).</p> <p>3.2.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 8 years or more and below 10 years of experience (post-qualification).</p> <p>3.2.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma or higher with a minimum of 4 years of experience (post-qualification).</p> <p>3.2.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 4 years of experience (post-registration).</p>	<p>30%</p>
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Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

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<p>3.3). For the bidder to be allocated 3 points, the bidder must have the following:</p> <p>3.3.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 6 years or more and below 8 years of experience (post-registration).</p> <p>3.3.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 6 years or more and below 8 years of experience (post-qualification).</p> <p>3.3.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 3 years of experience (post-qualification).</p> <p>3.3.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 3 years of experience (post-registration).</p> <p>3.4). For the bidder to be allocated 2 points, the bidder must have the following:</p> <p>3.4.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 4 years or more and below 6 years of experience (post-registration).</p> <p>3.4.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 4 years or more and below 6 years of experience (post-qualification).</p> <p>3.4.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 2 years of experience (post-qualification).</p> <p>3.5.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 2 years of experience (post-registration).</p> <p>3.5). For the bidder to be allocated 1 points, the bidder must have the following:</p> <p>3.5.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 2 years or more and below 4 years of experience (post-registration).</p> <p>3.5.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 2 years or more and below 4 years of experience (post-qualification).</p> <p>3.5.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 1 year of experience (post-qualification).</p> <p>3.5.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 1 year of experience (post-registration).</p> <p>3.6 None of the above, the bidder will be allocated zero points.</p>	
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<p>4. Project Execution Plan (PEP)</p> <p>The bidder must provide a detailed execution programme indicating major works or tasks or trades to be done on or off site with relevant cash flow projections of each major works/trades/task</p> <p>For the bidder to be allocated five (5) points, the bidder must submit with the tender the following:</p> <p>4.1). Project Specific Plan PEP based on the construction duration in the contract data (12 months) reflecting the following:</p> <p>4.1.1). Key activities 4.1.2). Show critical path 4.1.3). Show logical sequencing of activities 4.1.4). Show duration of key activities</p> <p>4.2). Project Specific Method Statement</p> <p>4.3). Project Specific Quality Management Plan</p> <p>4.4). Project Cash Flow</p> <p>Please note: The above will be evaluated as a cluster any omission of any of the above will result in a zero scores.</p>	<p>25%</p>
Total	100 Points

(Weights for functionality must add up to 100. Weightings will be multiplied by the scores allocated during the evaluation process to arrive at the total functionality points)

Minimum functionality score to qualify for further evaluation:	60
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(Total minimum qualifying score for functionality is 50 Percent, any deviation below or above the 50 Percent, provide motivation below)

The building targeted for upgrades in this project is a heritage structure, necessitating bidders with expertise to match or closely replicate its original architectural finishes. The project demands high quality workmanship and substantial knowledge from the contractor and key personnel onsite. The previous contractor was terminated due to failing quality standards: hence, the evaluation criteria are designed to select a bidder capable of fulfilling the quality requirements essential for mitigating the risk

3. THE FOLLOWING EVALUATION METHOD FOR RESPONSIVE BIDS WILL BE APPLICABLE:

<input type="checkbox"/> Method 1 (Financial offer)	<input checked="" type="checkbox"/> Method 2 (Financial and Preference offer)
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3.1. Indicate which preference points scoring system is applicable for this bid:

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

<input checked="" type="checkbox"/> 80/20 Preference points scoring system	<input type="checkbox"/> 90/10 Preference points scoring system	<input type="checkbox"/> Either 80/20 or 90/10 Preference points scoring system
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4. RESPONSIVENESS CRITERIA

4.1. Indicate substantive responsiveness criteria applicable for this tender. Failure to comply with the criteria stated hereunder shall result in the tender offer being disqualified from further consideration:

1	<input checked="" type="checkbox"/>	Only those tenderers who satisfy the eligibility criteria stated in the Tender Data may submit tenders.
2	<input checked="" type="checkbox"/>	Tender offer must be properly received on the tender closing date and time specified on the invitation, completed either electronically (if issued in electronic format), or by writing legibly in non-erasable ink. (All as per Standard Conditions of Tender).
3	<input checked="" type="checkbox"/>	Use of correction fluid is prohibited.
4	<input checked="" type="checkbox"/>	Submission of a signed bid offer as per the DPW-07 (EC).
5	<input checked="" type="checkbox"/>	Submission of DPW-09 (EC): Particulars of Tenderer's Projects.
6	<input checked="" type="checkbox"/>	Bidders must comply with DPW-21 (EC): Record of Addenda to tender documents, if any.
7	<input checked="" type="checkbox"/>	Submission of DPW-16 signed by the authorised official and completion of bid briefing attendance register.
8	<input checked="" type="checkbox"/>	The tenderer shall submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts) together with his tender.
9	<input checked="" type="checkbox"/>	The tenderer shall submit his fully priced and completed sectional summary- and final summary pages with the tender.
10	<input checked="" type="checkbox"/>	The bidder must submit with the tender, proof that they have an active CIDB Grading designation of 5 GB or higher at the closing date of the tender, in case of a JV the bidder must submit a consolidated CIDB Certificate of 5GB or higher.
11	<input type="checkbox"/>	
12	<input type="checkbox"/>	
13	<input type="checkbox"/>	
14	<input type="checkbox"/>	
15	<input type="checkbox"/>	

4.2. Indicate administrative requirements applicable for this tender. Tenderers may be required to submit the below documents where applicable.

The Employer reserves the right to request further information regarding the undermentioned criteria. Failing to submit further clarification and/or documentation within seven (7) calendar days from request or as specifically indicated, will disqualify the tender offer from further consideration.

1	<input checked="" type="checkbox"/>	Any correction to be initialled by the person authorised to sign the tender documentation as per PA 15.1 or PA 15.2 resolution of board/s of directors / or PA15.3 Special Resolution of Consortia or JV's.
2	<input checked="" type="checkbox"/>	Submission of applicable (PA-15.1, PA-15.2, PA-15.3): Resolution by the legal entity, or consortium / joint venture, authorising a dedicated person(s) to sign documents on behalf of the firm / consortium / joint venture.
3	<input checked="" type="checkbox"/>	All parts of tender documents submitted must be fully completed in ink and signed where required.
4	<input checked="" type="checkbox"/>	Submission of (PA-11): Bidder's disclosure
5	<input type="checkbox"/>	Submission of PA-16.1 (EC): Ownership Particulars
6	<input checked="" type="checkbox"/>	Submission of documentation relating to risk assessment criteria as contained in C 2.1 of DPW-03 Tender Data.
7	<input checked="" type="checkbox"/>	Submission of (PA 40): Declaration of Designated Groups.
8	<input checked="" type="checkbox"/>	Submission of proof of Registration on National Treasury's Central Supplier Database (CSD). Insert the Supplier Registration Number on the form of offer, including proposed sub-contractors if any
9	<input checked="" type="checkbox"/>	Data provided by the tenderer in Part 2 of DPW-04 Contract Data (JBCC 2018) or DPW-05 Contract Data (GCC 2015) whichever applicable to be fully completed.
10	<input type="checkbox"/>	The tenderer shall submit his fully priced Bills of Quantities (complete document inclusive of all parts) within 14 calendar days from request.
11	<input checked="" type="checkbox"/>	Upon request, submission of fingerprints obtainable from local SAPS including any other additional documentation and information required for vetting purposes.
12	<input checked="" type="checkbox"/>	Upon request, submission of a fully completed security clearance application form with supporting documentation and information as required. The security clearance form will be provided by the Employer for projects requiring a security clearance.
13	<input checked="" type="checkbox"/>	In case of a joint venture the bidders must complete and submit a Separate PA-11
14	<input checked="" type="checkbox"/>	In case of a joint venture, bidders must register their joint venture on CSD
15	<input type="checkbox"/>	
16	<input type="checkbox"/>	
17	<input type="checkbox"/>	
18	<input type="checkbox"/>	

4.3. Indicate administrative requirements applicable for specific goals, Tenderers will not be required to submit the below document if not provided in the original tender proposals, Failure to comply with the criteria stated hereunder shall result in the tenderer not allocated points for specific goals.

1	<input checked="" type="checkbox"/>	Submission of (PA-16): Preference Points Claim Form in terms of the Preferential Procurement Regulations 2022
2	<input checked="" type="checkbox"/>	A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Certificate issued by a SANAS accredited service provider

5. METHOD TO BE USED TO CALCULATE POINTS FOR SPECIFIC GOALS:



5.1. For procurement transaction with rand value greater than R1 Million and up to R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 1 below are applicable.

Table 1

Serial No	Specific Goals	Preference Points Allocated out of 20	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE which is at least 51% owned by black people (Mandatory)	10	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51% owned by black women (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4.	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p> <p>National Council for Persons with Physical Disability in South Africa registration (NCPDSA).</p>

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

5.	An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
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8.2. For procurement transaction with rand value greater than R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 2 below are applicable.

NB. The use of one of goal numbers' 4 or 5 is mandatory. The BSC must select either one of the two, but not both.

Table 2

Serial No	Specific Goals	Preference Points Allocated out of 10	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE or any entity which is at least 51% owned by black people (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51% owned by black women (mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4. <input type="checkbox"/>	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

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	OR			Or <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. Or National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).
		5. <input type="checkbox"/> An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.

Black people mean Africans, Coloureds and Indians, who - (a) are citizens of the Republic of South Africa by birth or descent; or (b) became citizens of the Republic of South Africa by naturalisation - (i) before 27 April 1994; or (ii) on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation prior to that date. (BROAD-BASED BLACK ECONOMIC EMPOWERMENT ACT No 25899, 2003 of 9 JANUARY 2004).

6. BID EVALUATION METHOD

This bid will be evaluated according to the preferential procurement model in the PPPFA: (Tick applicable preference point scoring system)

<input checked="" type="checkbox"/> 80/20 Preference points scoring system	<input type="checkbox"/> 90/10 Preference points scoring system	<input type="checkbox"/> Either 80/20 or 90/10 Preference points scoring system
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In case where below/above R 50 000 000 is selected, the lowest acceptable tender will be used to determine the applicable preference point system.

7. ELIGIBILITY IN RESPECT OF RISK TO THE EMPLOYER:

Standard risk management assessment criteria in respect of tenders received for routine projects in the engineering and construction works environments:

Tender offers will be evaluated by an Evaluation Committee based on the technical and commercial risk criteria listed hereunder. Each criterion carries the same weight / importance and will be evaluated individually based on reports presented to the Bid Evaluation Committee by the Professional Team appointed on the project. A tender offer will be declared non-responsive and removed from any further evaluation if any one criterion is found to present an unacceptable risk to the Employer.

In order for the evaluation reports to be prepared by the Professional Team, the Tenderer is obliged to provide comprehensive information on form DPW-09 (EC). Failure to complete the said form will cause the tender to be declared non-responsive and removed from any further consideration. The Employer reserves the right to request additional information over and above that which is provided by the Tenderer on said form. The information must be provided by the Tenderer within the stipulated time as determined by the Bid Evaluation Committee, failing which the tender offer will *mutatis mutandis* be declared non-responsive.

7.1 Technical risks:

Criterion 1: Experience on comparable projects during the past 10 years.

The tendering Service Provider's experience on comparable projects during the past 10 years. The number of current and previous comparable projects performed by the Tenderer as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer will be *mutatis mutandis* declared non-responsive.

Aspects to be regarded as "comparable" includes (but may be extended according to circumstances): size of projects (measured against monetary value or other project quantifying parameters), nature of projects (building, engineering, high/low rise, etc.), locality/area of execution (site-specific influences, knowledge of local conditions, etc.), complexity of project, projects for similar client department irrespective of end purpose of buildings/facilities created or in progress of being created and time scales of projects (normal, fast track, etc.) and stage of its/their development.

Criterion 2: Contractual commitment and quality of performance on comparable projects during the past 10 years.

Adherence to contractual commitments and quality of performance of comparable current and previous projects performed by the Tenderer during the past 10 years as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer be *mutatis mutandis* declared non-responsive.

Aspects to be considered include, but are not limited to the following:

1. The level of progress on current projects in relation to the project programme or, if such is not available/applicable, to the contractual construction period in general;
2. The degree to which previous projects have been completed within the contractual completion periods and/or extensions thereto, and the extend of penalties imposed;
3. Project performance: time management & programming of works, timeous ordering of materials and appointment of subcontractors;
4. Financial management: payment to suppliers and cash flow problems;
5. Quality of workmanship: extent of reworks and timeous attention to remedial works;
6. Personnel resources: suitably qualified and experienced, turnover in site staff and labour force, specifically site manager and foreman;
7. Personnel management: extent of labour disputes and ability to resolving labour disputes amicably;
8. Sub-contractors: extent of turnover in subcontractors, general liaison and payment problems experienced;
9. Contract administration: contractual aspects such as complying to laws and regulations, insurances, security, submission of required documentation timeously, reaction to written contract instructions, appointments of subcontractors, etc. as can generally be expected in standard/normal conditions of contract.
10. Health & Safety: adherence to regulations and compliance, and number of transgressions & serious incidents.
11. Plant & equipment: sufficient resources on site and in time.
12. Delays: extent of causing delays, submission of claims timeously, and abuse of or exaggerated delay claims.
13. Final account: extent to which the contractor assisted in finalising the final account.

Criterion 3: Suitably qualified and appropriately experienced human resources

Allocation of suitably qualified and appropriately experienced human resources, both in respect of principals and/or other staff (contract manager, site agent, site foreman including other professional, technical and/or administrative) of the tendering Service Provider to the project, as proof that the tendering Service Provider will be able to react/respond appropriately to the Services required herein. The Company Organogram with CV's and certified ID's of all principals and employed workforce as well as proof of Professional Registration

will be verified. Current and future workload of the tenderer in relation to capacity and capability will also be considered. The tenderer should demonstrate that he or she possesses the necessary professional and technical qualifications and -competence in relation to the scope of work and work to be undertaken.

Criterion 4: Attendance of compulsory bid clarification meeting, if applicable

If applicable, submission of confirmation of DPW-16.1 (PSB) attendance of compulsory bid clarification meeting or proof of attending the compulsory virtual meeting by a suitably qualified and experienced representative of the tenderer in terms of PA-04 (EC): Notice and Invitation to Tender.

7.2 Commercial risks:

The financial viability assessment evaluates the risk over the life of the construction period, as to whether the tenderer will be able to deliver the goods and services which are specified in the contract and / or be able to fulfil guarantees or warranties provided for in the contract in order to complete the project successfully for the amount tendered.

Aspects to be considered include but are not limited to, the respective rates tendered, bank rating, financial capability and capacity whether the tenderer has or has access to sufficient financial resources to deliver the goods or services described in the tender documentation (including fulfilling any guarantees or warranty claims), whether the tenderer is not subject to any current or impending legal action (either formal proceedings or notification of legal action) which could impact on the financial standing of the tenderer or the delivery of the goods or services, financial report from auditors as proof of current liquidity, and company or any parent company or investor guarantee/s and financial statements.

8. CONTRACT PARTICIPATION GOAL TARGETS AND CIDB B.U.I.L.D. PROGRAMME

The contractor shall achieve in the performance of the contract the following Contract Participation Goals (CPGs) as described in PG-01.2 (EC): Scope of Work and PG-02.2 (EC): Pricing Assumptions and in accordance with the feasibility study, which forms part of the specifications in the CPG Section of the Specification of this contract.

(a)	Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(b)	Minimum Targeted Local Building Material Suppliers Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(c)	Minimum Targeted Local Labour Skills Development Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(d)	cidb BUILD Programme: Minimum Targeted Enterprise Development Contract Participation Goal in accordance with the cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable

(e)	cidb BUILD Programme: Minimum Targeted Local Labour Skills Development Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 48491 of 28 April 2023 and the cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.– Condition of Contract	Not applicable
(f)	DPWI National Youth Service training and development programme (NYS) – Condition of Contract.	Not applicable
(g)	Labour Intensive Works – Condition of Contract.	Not applicable
(h)		Select
(i)		Select

9. COLLECTION OF TENDER DOCUMENTS

- ☒ Bid documents are available for free download on e-Tender portal www.etenders.gov.za
- ☒ Alternatively; Bid documents may be collected during working hours at the following address AVN Gebou Building, 251 Nana Sita St, Pretoria Central, Pretoria, 0001. A non-refundable bid deposit of R 300.00 is payable (cash only) on collection of the bid documents.

10. SITE INSPECTION MEETING

A pre-tender site inspection meeting will **be** held in respect of this tender.
Attendance of said pre- tender site inspection meeting is **compulsory**

The particulars for said pre- tender site inspection meeting or virtual bid clarification / site inspection meeting. are:

Venue:	Thaba Tshwane Joint Support Base Garrison Finance Office Pretoria Townlands 351-JR, Centurion		
Virtual meeting link:	N/A		
Date:	22 July 2024	Starting time:	11H00

11. ENQUIRIES

11.1. Technical enquiries may be addressed to:

DPWI Project Manager	Ms Kgaugelo Ledwaba	Telephone no:	012 406 1654
Cellular phone no	060 868 7518	Fax no:	N/A
E-mail	Kgaogelo.Ledwaba@dpw.gov.za		

11.2. SCM enquiries may be addressed to:

SCM Official	Mr Sekwati Molepo	Telephone no:	012 492 1467
Cellular phone no	N/A	Fax no:	N/A
E-mail	Sekwati.Molepo@dpw.gov.za		

12. DEPOSIT / RETURN OF TENDER DOCUMENTS

Telegraphic, telephonic, telex, facsimile, electronic and / or late tenders will not be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

All tenders must be completed in non-erasable ink and submitted on the official forms – (forms not to be re-typed).

Tender documents may be posted to: The Director-General Department of Public Works and Infrastructure Private Bag X X229 Pretoria 0001 Attention: Procurement section: Room G03	OR	Deposited in the tender box at: AVN Gebou Building 251 Nana Sita Str Pretoria Central Tender Box
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T1.2 Tender Data

DPW-03 (EC): TENDER DATA

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office</i>
Reference no:	

Tender / Quotation no:	PT24/019	Closing date:	07 August 2024
Closing time:	11H00	Validity period:	12 Weeks (84 Calender days)

Clause number:	
	<p>The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Construction Procurement as per Government Notice No. 423 published in Government Gazette No. 42622 of 8 August 2019 and as amended from time to time. (see www.cidb.org.za).</p> <p>The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.</p> <p>Each item of data given below is cross-referenced to the clause marked "C" in the above mentioned Standard Conditions of Tender.</p>
C.1.1	The employer is the Government of the Republic of South Africa in its Department of Public Works and Infrastructure.
C.1.2	<p>For this contract the three volume approach is adopted.</p> <p>This procurement document has been formatted and compiled under the headings as contained in the CIDB's "Standard for Uniformity in Construction Procurement."</p> <p>The three volume procurement document issued by the employer comprises the following:</p> <p>Volume 1: Tendering procedures T1.1 - Notice and invitation to tender (PA-04 EC) T1.2 - Tender data (DPW-03 EC)</p> <p>Volume 2: Returnable documents T2.1 - List of returnable documents (PA-09 EC) C1.1 - Form of offer and acceptance (DPW-07 EC) C1.2 – Contract Data T2.2 - Returnable schedules</p> <p>Volume 3: Contract Part C1: Agreement and contract data C1.2 - Contract data (Part 1: Data provided by employer) (DPW-04 EC or DPW-05 EC) C1.3 - Form of guarantee (DPW-10.1 EC / DPW-10.3EC or DPW-10.2 EC/DPW-10.4 EC)</p> <p>Part C2: Pricing data C2.1 - Pricing Assumptions (PG-02.2 EC or PG-02.1EC) C2.2 - Bills of Quantities / Lump sum document (if not a returnable document)</p> <p>Part C3: Scope of work C3 - Scope of work (PG-01.2 EC or PG-01.1EC)</p> <p>Part C4: Site information C4 - Site information (PG-03.2 EC or PG03.1EC)</p>

Tender no: PT24/019

C.1.4	<p>The Employer's agent is:</p> <table border="1"> <tr> <td>Name:</td><td>Kgaugelo Ledwaba</td></tr> <tr> <td>Capacity:</td><td>Departmental Project Manager</td></tr> <tr> <td>Address:</td><td>Pretoria Regional Office AVN Gebou Building 4th Floor, Room 431 251 Nana Sita Strt</td></tr> <tr> <td>Tel:</td><td>012 406 1654</td></tr> <tr> <td>Fax:</td><td>N/A</td></tr> <tr> <td>E-mail:</td><td>Kgaogelo.Ledwaba@dpw.gov.za</td></tr> </table>	Name:	Kgaugelo Ledwaba	Capacity:	Departmental Project Manager	Address:	Pretoria Regional Office AVN Gebou Building 4th Floor, Room 431 251 Nana Sita Strt	Tel:	012 406 1654	Fax:	N/A	E-mail:	Kgaogelo.Ledwaba@dpw.gov.za
Name:	Kgaugelo Ledwaba												
Capacity:	Departmental Project Manager												
Address:	Pretoria Regional Office AVN Gebou Building 4th Floor, Room 431 251 Nana Sita Strt												
Tel:	012 406 1654												
Fax:	N/A												
E-mail:	Kgaogelo.Ledwaba@dpw.gov.za												
C.2.1 C.3.11	<p>A. <u>ELIGIBILITY IN RESPECT OF CIDB REGISTRATION:</u></p> <p>The following tenderers who are registered with the CIDB, or are *capable of being so registered prior to the evaluation of submissions, are eligible to have their tenders evaluated (* tenderers who are capable of being so registered, or who have applied for registration but have not yet received confirmation of such registration, must provide, <u>with this tender</u>, acceptable documentary proof thereof):</p> <ul style="list-style-type: none"> a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a 5 GB or 5 GB** class of construction work; and b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above: Not applicable <p>Joint ventures are eligible to submit tenders provided that:</p> <ul style="list-style-type: none"> 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation in the 5 GB or 5 GB** class of construction work; and 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations for a 5 GB or 5 GB** class of construction work <p>** Delete "or select tender value range select class of construction works" where only one class of construction works is applicable</p> <p>A contract will be entered into with a tenderer who has in his employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for supervisory and management staff: Not applicable</p>												

Tender no: PT24/019

C. FUNCTIONALITY WEIGHTING APPLICABLE TO THIS BID:

Note: Failure to meet minimum functionality score will result in the tenderer being disqualified.

Functionality Criteria	Weighting Factor
<p>1. Work Experience on Project Completed</p> <p>The bidder must submit with the tender the following:</p> <p>Appointment letter on a client letterhead and Practical Completion Certificates or First Delivery Certificate and contactable references on the referenced projects.</p> <p>Comparable / relevant (similar in nature and value) in Building works projects ranging from R6 000 000.00 and above per project, the work experience should show general building work which includes electrical, mechanical, structural.</p> <p>The referenced projects must have been successfully completed by the company within the past ten (10) years. (NB - References, contact details, and completion certificates must be provided on similar works).</p> <p>1.1). Five (5) or more successful completed projects = 5 points 1.2). Four (4) successful completed projects = 4 points 1.3). Three (3) successful completed projects = 3 points 1.4). Two (2) successful completed projects = 2 points 1.5). One (1) successful completed projects = 1 points 1.6). Zero (0) completed projects = 0 points</p>	30%
<p>2. Bank Rating</p> <p>The bidder must submit with tender an original stamped bank rating letter or a certified copy of such a letter which is not older than six months on the closing of the tender. The Bid Evaluation Committee will verify all the information provided by the bidder in line with the Functionality Criteria.</p> <p>2.1). Rating A = 5 points 2.2). Rating B = 4 points 2.3). Rating C = 3 points 2.4). Rating D = 2 points 2.5). Rating E = 1 point</p>	15%
<p>3. Human Resources - Key Personnel</p> <p>The bidder must provide suitable qualifications / certificates and ID's and they must be originally certified and not older than 6 months from the date of tender closing. Proof of work force to execute the project by attaching CV's, originally certified ID copies, and qualification certificates (if registration is not yet finalised, proof of registration is acceptable). The Bid Evaluation Committee will verify all the information provided by the bidder in line with the Functionality Criteria.</p> <p>The company must submit a project-specific organogram that reflects the key personnel assigned to this project with their experience in the built environment as personnel assigned to this</p>	30%

	<p>project with their experience in the built environment as per the below among others the mentioned key staff requirements.</p> <p>The key personnel must be employees of the company if not, an undertaking should be attached from the person who will be involved for the duration of the project and assigned to the project on a full-time basis.</p> <p>NOTE: The below will be evaluated as a cluster, any omission of any key staff will result in a zero score.</p> <p>NB: Calculating scores of experience to the lowest years. All the personnel will be grouped according to their respective experience clusters. If these individuals fall into different clusters, the evaluation committee will allocate points based on the cluster corresponding to the personnel with the lowest years of experience.</p> <p>3.1). For the bidder to be allocated 5 points, the bidder must have the following:</p> <p>3.1.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 10 years or more experience (post-registration).</p> <p>3.1.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 10 years or more experience (post-qualification).</p> <p>3.1.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma or higher with a minimum of 5 years of experience (post-qualification).</p> <p>3.1.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 5 years of experience or higher (post-registration).</p> <p>3.2). For the bidder to be allocated 4 points, the bidder must have the following:</p> <p>3.2.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 8 years or more and below 10 years of experience (post-registration).</p> <p>3.2.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 8 years or more and below 10 years of experience (post-qualification).</p> <p>3.2.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma or higher with a minimum of 4 years of experience (post-qualification).</p> <p>3.2.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health</p>	
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	<p>and safety officer with a minimum of 4 years of experience (post-registration).</p> <p>3.3). For the bidder to be allocated 3 points, the bidder must have the following:</p> <p>3.3.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 6 years or more and below 8 years of experience (post-registration).</p> <p>3.3.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 6 years or more and below 8 years of experience (post-qualification).</p> <p>3.3.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 3 years of experience (post-qualification).</p> <p>3.3.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 3 years of experience (post-registration).</p> <p>3.4). For the bidder to be allocated 2 points, the bidder must have the following:</p> <p>3.4.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 4 years or more and below 6 years of experience (post-registration).</p> <p>3.4.2). Site Agent who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 4 years or more and below 6 years of experience (post-qualification).</p> <p>3.4.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 2 years of experience (post-qualification).</p> <p>3.5.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 2 years of experience (post-registration).</p> <p>3.5). For the bidder to be allocated 1 points, the bidder must have the following:</p> <p>3.5.1). Contract Manager who has a Built Environment qualification B-Tech, BSC or higher and should be registered with SACPCMP as a Professional Construction Manager with a minimum of 2 years or more and below 4 years of experience (post-registration).</p> <p>3.5.2). Site Agent who has a Built Environment qualification B-Tech, B.SC or higher and should be registered with SACPCMP as</p>	
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	<p>a Candidate Construction Manager or ECSA as a Candidate Engineer/ Technologist with a minimum of 2 years or more and below 4 years of experience (post-qualification).</p> <p>3.5.3). Assistant Site Agent with Electrical or Mechanical Engineer with a National N Diploma with a minimum of 1 year of experience (post-qualification).</p> <p>3.5.4). OHS Officer with relevant Built Environment qualification and must be registered with SACPCMP as a Professional health and safety officer with a minimum of 1 year of experience (post-registration).</p> <p>3.6 None of the above, the bidder will be allocated zero points.</p>	
	<p>4. Project Execution Plan (PEP)</p> <p>The bidder must provide a detailed execution programme indicating major works or tasks or trades to be done on or off site with relevant cash flow projections of each major works/trades/task</p> <p>For the bidder to be allocated five (5) points, the bidder must submit with the tender the following:</p> <p>4.1). Project Specific PEP based on the construction duration in the contract data (12 months) reflecting the following:</p> <p>4.1.1). Key activities 4.1.2). Show critical path 4.1.3). Show logical sequencing of activities 4.1.4). Show duration of key activities</p> <p>4.2). Project Specific Method Statement</p> <p>4.3). Project Specific Quality Management Plan</p> <p>4.4). Project Cash Flow</p> <p>Please note: The above will be evaluated as a cluster any omission of any of the above will result in a zero scores.</p>	<p>25%</p>

(Weightings will be multiplied by the scores allocated during the evaluation process to arrive at the total functionality points)

Minimum functionality score to qualify for further evaluation:	60
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D. METHOD TO BE USED TO CALCULATE POINTS FOR SPECIFIC GOALS

☐ **D1. For procurement transaction with rand value greater than R2 000,00 and up to R1 Million (Inclusive of all applicable taxes) the specific goals listed below are applicable.**

Table 1

Serial No	Specific Goals	Preference Points Allocated out of 20	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE which is at least 51% owned by black people (Mandatory)	10	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE which is at least 51% owned by black women (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4.	An EME or QSE which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).
5.	An EME or QSE which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.



D2. For procurement transaction with rand value greater than R1 Million and up to R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 1 below are applicable.

Table 2

Serial No	Specific Goals	Preference Points Allocated out of 20	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE or any entity which is at least 51% owned by black people (Mandatory)	10	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. Or Any account or statement which is in the name of the bidder. Or Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. Or Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51% owned by black women (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4.	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent. Or South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. Or National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).
5.	An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.

☐ **D3. For procurement transaction with rand value greater than R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 2 below are applicable.**

NB. The use of one of goal numbers' 4 or 5 is mandatory. The BSC must select either one of the two, but not both.

Table 3

Serial No	Specific Goals	Preference Points Allocated out of 10	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE or any entity which is at least 51% owned by black people (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51% owned by black women (mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4. <input type="checkbox"/>	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent <p>Or</p> <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p>
OR			

	5. <input type="checkbox"/>			National Council for Persons with Physical Disability in South Africa registration (NCPDSA).	
		An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. 	

Black people mean Africans, Coloureds and Indians, who - (a) are citizens of the Republic of South Africa by birth or descent; or (b) became citizens of the Republic of South Africa by naturalisation - (i) before 27 April 1994; or (ii) on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation prior to that date. (BROAD-BASED BLACK ECONOMIC EMPOWERMENT ACT No 25899, 2003 of 9 JANUARY 2004).

Tender no: PT24/019

E. ELIGIBILITY IN RESPECT OF RISK TO EMPLOYER:

Standard risk management assessment criteria in respect of tenders received for routine projects in the engineering and construction works environments:

Tender offers will be evaluated by an Evaluation Committee based on the technical and commercial risk criteria listed hereunder. Each criterion carries the same weight / importance and will be evaluated individually based on reports presented to the Bid Evaluation Committee by the Professional Team appointed on the project. A tender offer will be declared non-responsive and removed from any further evaluation if any one criterion is found to present an unacceptable risk to the Employer.

In order for the evaluation reports to be prepared by the Professional Team, the Tenderer is obliged to provide comprehensive information on form DPW-09 (EC). Failure to complete the said form will cause the tender to be declared non-responsive and removed from any further consideration. The Employer reserves the right to request additional information over and above that which is provided by the Tenderer on said form. The information must be provided by the Tenderer within the stipulated time as determined by the Bid Evaluation Committee, failing which the tender offer will *mutatis mutandis* be declared non-responsive.

E.1 Technical risks:

Criterion 1: Experience on comparable projects during the past 10 years.

The tendering Service Provider's experience on comparable projects during the past 10 years. The number of current and previous comparable projects performed by the Tenderer as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer will be *mutatis mutandis* declared non-responsive.

Aspects to be regarded as "comparable" includes (but may be extended according to circumstances): size of projects (measured against monetary value or other project quantifying parameters), nature of projects (building, engineering, high/low rise, etc.), locality/area of execution (site-specific influences, knowledge of local conditions, etc.), complexity of project, projects for similar client department irrespective of end purpose of buildings/facilities created or in progress of being created and time scales of projects (normal, fast track, etc.) and stage of its/their development.

Criterion 2: Contractual commitment and quality of performance on comparable projects during the past 10 years.

Adherence to contractual commitments and quality of performance of comparable current and previous projects performed by the Tenderer on comparable projects during the past 10 years as per the evaluation report prepared by the Consultant Team, based on its research and inspection of a representative sample of the Tenderer's current and previous work as reflected on form DPW-09 (EC), as well as, if necessary, of any additional work executed by the Tenderer, not reflected on form DPW-09 (EC). Failing to provide contactable references will result in the tender offer be *mutatis mutandis* declared non-responsive.

Aspects to be considered include, but are not limited to the following:

1. The level of progress on current projects in relation to the project programme or, if such is not available/applicable, to the contractual construction period in general;
2. The degree to which previous projects have been completed within the contractual completion periods and/or extensions thereto, and the extend of penalties imposed;

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	<ol style="list-style-type: none"> 3. Project performance: time management & programming of works, timeous ordering of materials and appointment of subcontractors; 4. Financial management: payment to suppliers and cash flow problems; 5. Quality of workmanship: extent of reworks and timeous attention to remedial works; 6. Personnel resources: suitably qualified and experienced, turnover in site staff and labour force, specifically site manager and foreman; 7. Personnel management: extent of labour disputes and ability to resolving labour disputes amicably; 8. Sub-contractors: extent of turnover in subcontractors, general liaison and payment problems experienced; 9. Contract administration: contractual aspects such as complying to laws and regulations, insurances, security, submission of required documentation timeously, reaction to written contract instructions, appointments of subcontractors, etc. as can generally be expected in standard/normal conditions of contract. 10. Health & Safety: adherence to regulations and compliance, and number of transgressions & serious incidents. 11. Plant & equipment: sufficient resources on site and in time. 12. Delays: extent of causing delays, submission of claims timeously, and abuse of or exaggerated delay claims. 13. Final account: extent to which the contractor assisted in finalising the final account. <p>Criterion 3: Suitably qualified and appropriately experienced human resources</p> <p>Allocation of suitably qualified and appropriately experienced human resources, both in respect of principals and/or other staff (contract manager, site agent, site foreman including other professional, technical and/or administrative) of the tendering Service Provider to the project, as proof that the tendering Service Provider will be able to react/respond appropriately to the Services required herein. The Company Organogram with CV's and certified ID's of all principals and employed workforce as well as proof of Professional Registration will be verified. Current and future workload of the tenderer in relation to capacity and capability will also be considered. The tenderer should demonstrate that he or she possesses the necessary professional and technical qualifications and -competence in relation to the scope of work and work to be undertaken.</p> <p>Criterion 4: Attendance of compulsory bid clarification meeting, if applicable</p> <p>If applicable, submission of confirmation of DPW-16.1 (PSB) attendance of compulsory bid clarification meeting or proof of attending the compulsory virtual meeting by a suitably qualified and experienced representative of the tenderer in terms of PA-04 (EC): Notice and Invitation to Tender.</p> <p>E.2 Commercial risks:</p> <p>The financial viability assessment evaluates the risk over the life of the construction period, as to whether the tenderer will be able to deliver the goods and services which are specified in the contract and / or be able to fulfil guarantees or warranties provided for in the contract in order to complete the project successfully for the amount tendered.</p> <p>Aspects to be considered include but are not limited to, the respective rates tendered, bank rating, financial capability and capacity whether the tenderer has or has access to sufficient financial resources to deliver the goods or services described in the tender documentation (including fulfilling any guarantees or warranty claims), whether the tenderer is not subject to any current or impending legal action (either formal proceedings or notification of legal action) which could impact on the financial standing of the tenderer or the delivery of the goods or services, financial report from auditors as proof of current liquidity, and company or any parent company or investor guarantee/s and financial statements.</p>
C.2.7	For particulars regarding a pre-tender site inspection meeting, see Notice and Invitation to Tender T1.1

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C.2.12	<p>If a tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements. A tenderer may submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. Provided that the tenderer's main tender offer is according to specification and would under normal circumstances be recommended for acceptance, his alternative tender offer may also be considered for the purpose of the award of the contract.</p> <p>Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.</p> <p>Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.</p> <p>The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.</p> <p>Alternative tender offer permitted: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
C.2.13.2	The list of Returnable Documents identifies which of the documents a tenderer must complete when submitting a tender offer. The tenderer must submit his tender offer by completing the Returnable Documents, signing the "Offer" section in the "Form of Offer and Acceptance" and delivering the Returnable Documents back to the Department.
C.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are as per Notice and Invitation to Tender T1.1.
C.2.13.6 C.3.5	A two-envelope procedure will not be followed.
C.2.15	The closing time for submission of tender offers is as per Notice and Invitation to Tender T1.1.
C.2.16	The tender offer validity period is as per Notice and Invitation to Tender T1.1.
C2.16.3	Omit the wording of the last sentence for those projects which are subject to CPAP
C.2.18	<p>The tenderer will be required to submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts):</p> <p><input checked="" type="checkbox"/> Together with his tender; or <input type="checkbox"/> The tenderer shall submit his fully priced and completed sectional summary- and final summary pages with the tender and thereafter submit the fully completed Bills of Quantities within fourteen (14) calendar days of the date requested to do so prior to the award of the contract.</p>
C.2.19	Access shall be provided for inspections, tests and analysis as may be required by the Employer.
C.3.4.1 C.3.4.2	<p>The location for opening of the tender offers, immediately after the closing time thereof shall be at:</p> <p>AVN Gebou Building, 251 Nana Sita Str, Pretoria Central, Pretoria, 0001</p>
C.3.8	The words "responsive tender" and "acceptable tender" shall be construed to have the same meaning.

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C.3.9.3	Omit the wording and replace with the following: “Notify the tenderer of all errors, omissions and/or rate imbalances that are identified in the tender offer and request the tenderer to, within a stipulated time, accept the total of prices as corrected in accordance with C.3.9.4.”
C.3.9.4	Omit the wording of the first sentence and replace with the following: “In cases where tender offers contain errors, omissions and/or rate imbalances, these are to be corrected as follows:”
C.3.9.4	Add sub paragraph c) to C.3.9.4, as follows: “c) If the tenderer does not accept the corrected tender offer, or cannot reach consensus with the Employer on a corrected tender offer, the tender is to be classified as not acceptable/non responsive and removed from further contention.”
C.3.11.1	The procedure for the evaluation of responsive tenders is Method 2: Financial Offer and Preference.
C.3.13	Add the following to sub paragraph a), as follows: The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act No. 12 of 2004) as a person prohibited from doing business with the public sector;
C.3.17	Provide to the successful tenderer one copy of the signed contract document.

VOLUME 2: RETURNABLE DOCUMENTS

T2.1 List of Returnable Documents

PA-09 (EC): LIST OF RETURNABLE DOCUMENTS

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office</i>		
Tender / Quotation no:	PT24/019	Reference no:	
Receipt Number:			

1. RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Submission of a signed bid offer as per the (DPW-07 EC)	4 Pages	Yes
Submission of DPW-09 (EC): Particulars of Tenderer's Projects.	2 Pages	Yes
Bidders must comply with DPW-21 (EC): Record of Addenda to tender documents, if any.	1 Page	Yes
Submission of DPW-16 signed by the authorised official and completion of bid briefing attendance register. Bidders must familiarise themselves with the site conditions to be able to complete the tender document.	1 Page	Yes
The tenderer shall submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts) together with his tender.	122 Pages	Yes
The bidder must submit with the tender, proof that they have an active CIDB Grading designation of 5 GB or higher at the closing date of the tender, in case of JV the bidder must submit consolidated CIDB certificate of 5 GB or higher.	-	Yes

* In compliance with the requirements of the CIDB SFU Annexure G

Tender / Quotation no: PT24/019

2. ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: Failure to submit the applicable documents will result in the Tenderer having to submit the same upon request within Seven (7) calendar days from request and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Any <u>additional</u> information required to complete a risk assessment (<i>if applicable</i>)	-	Yes
Any correction to be initialled by the person authorised to sign the tender documentation as per PA 15.1 or PA 15.2 resolution of board/s of directors / or PA15.3 Special Resolution of Consortia or JV's.	7 Pages	Yes
Submission of applicable (PA-15.1, PA-15.2, PA-15.3): Resolution by the legal entity, or consortium / joint venture, authorising a dedicated person(s) to sign documents on behalf of the firm/consortium / joint venture.	7 Pages	Yes
Submission of (PA-11) Bidder's disclosure	3 Pages	Yes
Submission of PA-16.1 (EC): Ownership Particulars	10 Pages	Yes
Submission of proof of Registration on National Treasury's Central Supplier Database (CSD). Insert the Supplier Registration Number on the form of offer, including proposed subcontractors if any	-	Yes
Submission of (PA 40): Declaration of Designated Groups	2 Pages	Yes
In case of a joint venture, the bidder must complete and submit a separate PA-11	4 Pages	Yes

3. RETURNABLE DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Note: Failure to submit the applicable documents will result in the Tenderer having to submit the same upon request within Seven (7) calendar days and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Schedule of proposed subcontractors (DPW-15 EC) (<i>if applicable</i>)	1 Page	Yes
Particulars of Electrical Contractor (DPW-22 EC) (<i>if applicable</i>)	1 Page	Yes
Mechanical / Electrical / Security work material and equipment schedules (<i>if applicable</i>)	Pages	Yes
Schedule for Imported Materials and Equipment (DPW-23 EC) (<i>if applicable</i>)	1 Page	Yes

4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

(Insert a tick in the "Returnable document" column to indicate which documents must be returned with the tender)

Note: Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts)	122 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fully priced and completed sectional summary- and final summary pages with the tender.	5 Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Tender / Quotation no: PT24/019

Tender document name	Number of pages issued	Returnable document
<i>insert document name</i>	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>insert document name</i>	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No
<i>insert document name</i>	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No

5. ADDITIONAL INFORMATION THAT MAY BE REQUIRED FOR TENDER EVALUATION PURPOSES

Legal Status of Tendering Entity: If the Tendering Entity is:	Documentation to be submitted with the tender, or which may be required during the tender evaluation:
a. A close corporation, incorporated prior to 1 May 2011 under the Close Corporations Act, 1984 (Act 69 of 1984, as amended)	Copies of the Founding Statement – CK1
b. A profit company duly registered as a private company. [including a profit company that meets the criteria for a private company, whose Memorandum of Incorporation states that the company is a personal liability company in terms of Section 8(2)(c) of the Companies Act, 2008 (Act 71 of 2008, as amended)].	Copies of: i. Certificate of Incorporation – CM1; ii. Shareholding Certificates of all Shareholders of the company, plus a signed statement of the company's Auditor, certifying each Shareholder's ownership / shareholding percentage relative to the total; and/or iii. Memorandum of Incorporation in the case of a personal liability company.
c. A profit company duly registered as a private company in which any, or all, shares are held by one or more other close corporation(s) or company(ies) duly registered as profit or non-profit company(ies).	Copies of documents referred to in a. and/or b. above in respect of all such close corporation(s) and/or company(ies).
d. A profit company duly registered as a public company.	Copy of Certificate of Incorporation – CM1, and a signed statement of the company's Secretary or Auditor confirming that the company is a public company.
e. A non-profit company, incorporated in terms of Section 10 and Schedule 1 of the Companies Act, 2008 (Act 71 of 2008, as amended).	Copies of: i the Founding Statement – CK1; and ii the Memorandum of Incorporation setting out the object of the company, indicating the public benefit, cultural or social activity, or communal or group interest.
f. A natural person, sole proprietor or a Partnership	Copy(ies) of the Identity Document(s) of: i. such natural person/ sole proprietor, or each of the Partners to the Partnership.
g. A Trust	Deed of Trust duly indicating names of the Trustee(s) and Beneficiary (ies) as well as the purpose of the Trust and the mandate of the Trustees.

Signed by the Tenderer

Name of representative	Signature	Date

C1.1 Form of Offer and Acceptance

DPW-07 (EC): FORM OF OFFER AND ACCEPTANCE

Project title:	Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.		
Tender / Quotation no:	PT24/019	Reference no:	

OFFER

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

Repairs, and refurbishment of existing finance offices, including services such as wet services, mechanical works, electrical works, civil works, etc.

The Tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

THE TOTAL OFFER INCLUSIVE OF ALL APPLICABLE TAXES ("All applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies) **IS:**

Rand (in figures) R

Rand (in words).....

.....

.....

The amount in words takes precedence over the amount in figures. The award of the tender may be subjected to further price negotiation with the preferred tenderer(s). The negotiated and agreed price will be considered for acceptance as **a firm and final offer**.

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the tender data, whereupon the Tenderer becomes the party named as the Contractor in the conditions of contract identified in the contract data.

THIS OFFER IS MADE BY THE FOLLOWING LEGAL ENTITY: (cross out block which is not applicable)

Company or Close Corporation: And: Whose Registration Number is: And: Whose Income Tax Reference Number is: CSD supplier number:.....	OR	Natural Person or Partnership: Whose Identity Number(s) is/are: Whose Income Tax Reference Number is/are: CSD supplier number:.....
--	----	--

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

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AND WHO IS (if applicable):	
Trading under the name and style of:	
AND WHO IS:	
Represented herein, and who is duly authorised to do so, by: Mr/Mrs/Ms: In his/her capacity as:	Note: A Resolution / Power of Attorney, signed by all the Directors / Members / Partners of the Legal Entity must accompany this Offer, authorising the Representative to make this offer.

SIGNED FOR THE TENDERER:

Name of representative	Signature	Date

WITNESSED BY:

Name of witness	Signature	Date

This Offer is in respect of: (Please indicate with an "X" in the appropriate block)

- The official documents ☐
- The official alternative ☐
- Own alternative (only if documentation makes provision therefore) ☐

(N.B.: Separate Offer and Acceptance forms are to be completed for the main and for each alternative offer)

SECURITY OFFERED:

- (a) the Tenderer accepts that in respect of contracts up to R1 million, a payment reduction** of 5% of the contact value (excluding VAT) will be applicable and will be deducted 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:
- (1) cash deposit of 10 % of the Contract Sum (excluding VAT) Yes ☐ No ☒
 - (2) variable construction guarantee of 10 % of the Contract Sum (excluding VAT) Yes ☐ No ☒
 - (3) payment reduction of 10% of the value certified in the payment certificate (excluding VAT) Yes ☒ No ☐
 - (4) cash deposit of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) Yes ☐ No ☒
 - (5) fixed construction guarantee of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) Yes ☐ No ☒

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act [Long-Term Insurance Act, 1998 (Act 52 of 1998) or Short-Term Insurance Act, 1998 (Act 35 of 1998)] or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

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The Tenderer elects as its *domicilium citandi et executandi* in the Republic of South Africa, where any and all legal notices may be served, as (physical address):

.....

Other Contact Details of the Tenderer are:

Telephone No..... Cellular Phone No.

Fax No

Postal address

Banker Branch.....

Registration No of Tenderer at Department of Labour

CIDB Registration Number:

ACCEPTANCE

By signing this part of this form of offer and acceptance, the Employer identified below accepts the Tenderer's offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the Tenderer's offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract are contained in:

Part C1 Agreement and contract data, (which includes this agreement)

Part C2 Pricing data

Part C3 Scope of work

Part C4 Site information and drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The Tenderer shall within two weeks after 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 securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this 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). Unless the tenderer (now contractor) within five (5) working days of the date of such receipt notifies the employer in writing of any reason why he/she cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

For the Employer:

Name of signatory	Signature	Date

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

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Name of Organisation:	Department of Public Works and Infrastructure
Address of Organisation:	<i>AVN Gebou Building, 251 Nana Sita Str, Pretoria, 0002</i>

WITNESSED BY:

Name of witness	Signature	Date

Schedule of Deviations

1.1.1. Subject:
Detail:
1.1.2. Subject:
Detail:
1.1.3. Subject:
Detail:
1.1.4. Subject:
Detail:
1.1.5. Subject:
Detail:
1.1.6. Subject:
Detail:

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

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

*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

**Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

T2.2 Returnable Documents required for tender evaluation purposes

PA-11: BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

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

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

2. Bidder's declaration

- 2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest (1) in the enterprise, employed by the state?

YES / NO

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

Full Name	Identity Number	Name of State institution

(1) the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

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

YES / NO

- 2.2.1 If so, furnish particulars:

.....
.....

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

YES / NO

- 2.3.1 If so, furnish particulars:

.....
.....

3 DECLARATION

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

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.5 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.6 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

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

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

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder

This form has been aligned with SBD4

PA-15.1: RESOLUTION OF BOARD OF DIRECTORS

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at _____ (place)

on _____ (date)

RESOLVED that:

- The Enterprise submits a Bid / Tender to the Department of Public Works in respect of the following project:

(Project description as per Bid / Tender Document)

Bid / Tender Number: _____ (Bid / Tender Number as per Bid / Tender Document)

- *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
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16			

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19			
20			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. * Delete which is not applicable.
2. **NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.
3. In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).
4. Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).
5. Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

PA-15.2: RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at _____ *(place)*

on _____ *(date)*

RESOLVED that:

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)

to the Department of Public Works in respect of the following project:

(Project description as per Bid /Tender Document)

Bid / Tender Number: _____ *(Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____ *(Position in the Enterprise)*

and who will sign as follows: _____

be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.
4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

Physical address: _____

_____ *(code)*

Postal Address: _____

 _____ (code)

Telephone number: _____

Fax number: _____

	Name	Capacity	Signature
1			
2			
3			
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12			
13			
14			
15			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed

Note:

- * Delete which is not applicable.
- NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.
- In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).
- Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).
- Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

PA-15.3: SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the duly authorised representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: *(legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Held at _____ (place)

on _____ (date)

RESOLVED that:

RESOLVED that:

- A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Department of Public Works in respect of the following project:

(Project description as per Bid /Tender Document)

Bid / Tender Number: _____ *(Bid / Tender Number as per Bid /Tender Document)*

PA-15.3: Special Resolution of Consortia or Joint Ventures

B. *Mr/Mrs/Ms: _____

in *his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address: _____

_____ (Postal code) _____

Postal Address: _____

_____ (Postal code) _____

Telephone number: _____

Fax number: _____

PA-15.3: Special Resolution of Consortia or Joint Ventures

	Name	Capacity	Signature
1			
2			
3			
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The bidding enterprise hereby absolves the Department of Public Works & Infrastructure from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. * Delete which is not applicable.
2. **NB:** This resolution must be signed by all the Duly Authorised Representatives of the Legal Entities to the consortium/joint venture submitting this tender, as named in item 2 of Resolution PA-15.2.
3. Should the number of the Duly Authorised Representatives of the Legal Entities joining forces in this tender exceed the space available above, additional names, capacity and signatures must be supplied on a separate page.
4. Resolution PA-15.2, duly completed and signed, from the separate Enterprises who participate in this consortium/joint venture, must be attached to this Special Resolution (PA-15.3).

DPW-16 (EC): SITE INSPECTION MEETING CERTIFICATE

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office</i>		
Tender / Quotation no:	<i>PT24/019</i>	Reference no:	
Closing date:	<i>07 August 2024</i>		

This is to certify that I, _____ representing

_____ in the capacity of

_____ visited the site on: **22 July 2024**

I have made myself familiar with all local conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the site inspection meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

Name of Tenderer	Signature	Date

Name of DPW Representative	Signature	Date

PA-16: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

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

1. GENERAL CONDITIONS

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

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 Preference Points System to be applied

(tick whichever is applicable).

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

1.3 Points for this tender shall be awarded for:

1.3.1 Price; and

1.3.2 Specific Goals

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

CHOOSE APPLICABLE PREFERENCE POINT SCORING SYSTEM	<input checked="" type="checkbox"/> 80/20	<input type="checkbox"/> 90/10
PRICE	80	90
SPECIFIC GOALS	20	10
Total points for Price and Specific Goals	100	100

1.5 Breakdown Allocation of Specific Goals Points



1.5.1. For procurement transaction with rand value greater than R2 000, 00 and up to R1 Million (Inclusive of all applicable taxes) the specific goals listed in table 1 below are applicable.

Table 1

Serial No	Specific Goals	Preference Points Allocated out of 20	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE which is at least 51% owned by black people (Mandatory)	10	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE which is at least 51% owned by black women (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4.	An EME or QSE which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.

			<p>and</p> <ul style="list-style-type: none"> • Medical Certificate indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> • South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> • National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).
5.	An EME or QSE which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> • ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.



1.5.2. For procurement transaction with rand value greater than R1 Million and up to R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 2 below are applicable.

Table 2

Serial No	Specific Goals	Preference Points Allocated out of 20	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE or any entity which is at least 51% owned by black people (Mandatory)	10	<ul style="list-style-type: none"> • SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> • Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p>

			<ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51% owned by black women (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
4.	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p> <p>National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).</p>

5.	An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
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1.5.3. For procurement transaction with rand value greater than R50 Million (Inclusive of all applicable taxes) the specific goals listed in table 3 below are applicable.

NB. The use of one of goal numbers' 4 or 5 is mandatory. The BSC must select either one of the two, but not both.

Table 3

Serial No	Specific Goals	Preference Points Allocated out of 10	Documentation to be submitted by bidders to validate their claim
1.	An EME or QSE or any entity which is at least 51% owned by black people (Mandatory)	4	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.
2.	Located in a specific Local Municipality or District Municipality or Metro or Province area for work to be done or services to be rendered in that area (Mandatory)	2	<ul style="list-style-type: none"> Official Municipal Rates Statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Any account or statement which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Permission to Occupy from local chief in case of rural areas (PTO) which is in the name of the bidder. <p>Or</p> <ul style="list-style-type: none"> Lease Agreement which is in the name of the bidder.
3.	An EME or QSE or any entity which is at least 51%	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable.

		owned by black women (mandatory)		
	4. <input type="checkbox"/>	An EME or QSE or any entity which is at least 51% owned by black people with disability (Mandatory)	2	<ul style="list-style-type: none"> SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable. <p>and</p> <ul style="list-style-type: none"> Medical Certificate indicating that the disability is permanent. <p>Or</p> <ul style="list-style-type: none"> South African Social Security Agency (SASSA) Registration indicating that the disability is permanent. <p>Or</p> <p>National Council for Persons with Physical Disability in South Africa registration (NCPDPSA).</p>
	OR			
	5. <input type="checkbox"/>	An EME or QSE or any entity which is at least 51% owned by black youth (Mandatory)	2	<ul style="list-style-type: none"> ID Copy and SANAS Accredited BBBEE Certificate or Sworn Affidavit where applicable

Black people mean Africans, Coloureds and Indians, who - (a) are citizens of the Republic of South Africa by birth or descent; or (b) became citizens of the Republic of South Africa by naturalisation - (i) before 27 April 1994; or (ii) on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalisation prior to that date. (BROAD-BASED BLACK ECONOMIC EMPOWERMENT ACT No 25899, 2003 of 9 JANUARY 2004).

- 1.6 Failure on the part of the tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals, if the service provider/ tenderer did not submit proof or documentation required to claim for specific goals will be interpreted to mean that preference points for specific goals are not claimed.
- 1.7 The organ of state reserves the right to require of a service provider/tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations,

competitive tendering process or any other method envisaged in legislation;

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1. THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \\ \mathbf{Ps = 80 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)} \end{array}$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ \\ \mathbf{Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)} & \mathbf{or} & \mathbf{Ps = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)} \end{array}$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1,2 and 3 above as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,
- then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 4: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.)

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
1. An EME or QSE (or any entity for procurement transaction with rand value greater than R1 Million) which is at least 51% owned by black people	4	10		
2. Located in a specific Local Municipality or District Municipality or Metro or	2	2		

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Province area for work to be done or services to be rendered in that area				
3. An EME or QSE (or any entity for procurement transaction with rand value greater than R1 Million) which is at least 51% owned by black women	2	4		
4. An EME or QSE (or any entity for procurement transaction with rand value greater than R1 Million) which is at least 51% owned by black people with disability	2	2		
5. An EME or QSE (or any entity for procurement transaction with rand value greater than R1 Million) which is at least 51% owned by black youth.*	2	2		

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

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

☐ State Owned Company
[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

.....	
SIGNATURE(S) OF TENDERER(S)	
SURNAME AND NAME:
DATE:
ADDRESS:

DPW-09 (EC): PARTICULARS OF TENDERER'S PROJECTS

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office</i>		
Tender / quotation no:	PT24/019	Closing date:	07 August 2024
Advertising date:	03 July 2024	Validity period:	84 Calendar days

1. PARTICULARS OF THE TENDERER'S CURRENT AND PREVIOUS COMMITMENTS

1.1. Current projects

Projects currently engaged in	Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commencement date	Contractual completion date	Current percentage progress
1						
2						
3						
4						
5						
6						
7						
8						

1.2. Completed projects

Projects completed in the previous 5 (five) years	Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commencement date	Contractual completion date	Date of Certificate of Practical Completion
1						
2						
3						
4						
5						
6						
7						
8						
9						

Name of Tenderer	Signature	Date

T2.2 Returnable Documents that will be incorporated into the contract

PA- 40: DECLARATION OF DESIGNATED GROUPS

Tender no: PT24/019

Name of Tenderer

☐ EME¹ ☐ QSE² ☐ Non EME/QSE (tick applicable box)

1. LIST ALL PROPRIETORS, MEMBERS OR SHAREHOLDERS BY NAME, IDENTITY NUMBER, CITIZENSHIP AND DESIGNATED GROUPS.

Name and Surname #	Identity/ Passport number and Citizenship##	Percentage owned	Black	Indicate if youth	Indicate if woman	Indicate if person with disability	Indicate if living in Rural (R) / Under Developed Area (UD) / Township (T) / Urban (U).	Indicate if military veteran
1.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
8.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
9.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
10.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
11.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
12.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No

Where Owners are themselves a Company, Close Corporation, Partnership etc, identify the ownership of the Holding Company, together with Registration number
State date of South African citizenship obtained (not applicable to persons born in South Africa)

¹ EME: Exempted Micro Enterprise

² QSE: Qualifying Small Business Enterprise

PA- 40: DECLARATION OF DESIGNATED GROUPS

Tender no: PT24/019

2. DECLARATION:

The undersigned, who warrants that he/she is duly authorized to do so on behalf of the Tenderer, hereby confirms that:

- 1 The information and particulars contained in this Affidavit are true and correct in all respects;
- 2 The Broad-based Black Economic Empowerment Act, 2003 (Act 53 of 2003), Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000), National Small Business Act 102 of 1996 as amended and all documents pertaining to this Tender were studied and understood and that the above form was completed according to the definitions and information contained in said documents;
- 3 The Tenderer understands that any intentional misrepresentation or fraudulent information provided herein shall disqualify the Tenderer's offer herein, as well as any other tender offer(s) of the Tenderer simultaneously being evaluated, or will entitle the Employer to cancel any Contract resulting from the Tenderer's offer herein;
- 4 The Tenderer accepts that the Employer may exercise any other remedy it may have in law and in the Contract, including a claim for damages for having to accept a less favourable tender as a result of any such disqualification due to misrepresentation or fraudulent information provided herein;
- 5 Any further documentary proof required by the Employer regarding the information provided herein, will be submitted to the Employer within the time period as may be set by the latter;

Signed by the Tenderer

Name of representative	Signature	Date

DPW-21 (EC): RECORD OF ADDENDA TO TENDER DOCUMENTS

Project title:	<i>Department of Defence: joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.</i>		
Tender no:	<i>PT24/019</i>	Reference no:	

1. I / We confirm that the following communications received from the Department of Public Works and Infrastructure before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer: *(Attach additional pages if more space is required)*

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

Name of Tenderer	Signature	Date

2. I / We confirm that no communications were received from the Department of Public Works and Infrastructure before the submission of this tender offer, amending the tender documents.

Name of Tenderer	Signature	Date

DPW-15 (EC): SCHEDULE OF PROPOSED SUBCONTRACTORS

Project title:	<i>Department of Defence: Joint Support Base garrison Finance Office: Repair and Refurbishment of the Finance Office.</i>		
Tender no:	<i>PT24/019</i>	Reference no:	

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

We confirm that all subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	Name and address of proposed Subcontractor	Nature and extent of work	Previous experience with Subcontractor
1			
2			
3			
4			
5			

Name of representative	Signature	Capacity	Date

Name of organisation:	
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DPW-22 (EC): PARTICULARS OF ELECTRICAL CONTRACTOR

Project title:	Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.		
Tender no:	PT24/019	Reference no:	

Name of Electrical Contractor:	
Address:	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Electrical Contractor registration number at the Department of Labour	<hr/> <hr/>

Name of Tenderer	Signature	Date

DPW-23 (EC): SCHEDULE FOR IMPORTED MATERIALS AND EQUIPMENT

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance office: Repair and Refurbishment of the Finance Office.</i>		
Tender no:	PT24/019	Reference no:	

This schedule should be completed by the tenderer. *(Attach additional pages if more space is required)*

Item	Material / Equipment	Rand (R) (Excluding VAT)
1.		R
2.		R
3.		R
4.		R
5.		R
6.		R

Provide additional list if space provided is insufficient.

The Contractor shall list imported items, materials and/or equipment which shall be excluded from the Contract Price Adjustment Provisions (if applicable) and shall be adjusted in terms of currency fluctuations only. Copies of the supplier's quotations for the items, materials or equipment (provided that such costs shall not be higher than the relevant contract rate as listed above) should be lodged with the Principal Agent / Engineer of the Department of Public Works and Infrastructure within 60 (sixty) days from the date of acceptance of the tender. No adjustment of the local VAT amount, nor the contractor's profit, discount, mark-up, handling costs, etc. shall be allowed.

These net amounts will be adjusted as follows:

FORMULA:

The net amount to be added to or deducted from the contract sum:

$$A = V \left(\frac{Z}{Y} - 1 \right)$$

A = the amount (R) of adjustment

V = the net amount (supplier's quotation) (R) of the imported item

Y = exchange rate at the closing date of tender submission

Z = exchange rate on the date of payment.

Name of Tenderer	Signature	Date

VOLUME 3: CONTRACT

Part C1: Agreement and Contract Data

C1.2 Contract Data

DPW-04 (EC): CONTRACT DATA: JBCC PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)

Project title:	Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.
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Tender / Quotation no:	PT24/019	WCS no:	WCS 052557	Reference no:	
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	<p>The Conditions of Contract are clauses 1 to 30 of the JBCC® Principal Building Agreement (Edition 6.2 of May 2018) prepared by the Joint Building Contracts Committee.</p> <p>Contractors are cautioned to read the JBCC PBA and Contract Data (DPW-04 (EC)) together as some clauses in the JBCC PBA have been amended in the Contract Data (DPW-04 (EC)).</p> <p>Copies of these conditions of contract may be obtained through most regional offices of the Association of South African Quantity Surveyors, Master Builders Association, South African Association of Consulting Engineers, South African Institute of Architects, Association of Construction Project Managers, Building Industries Federation South Africa, South African Property Owners Association or Specialist Engineering Contractors Committee.</p> <p>Bidders to note that materials procured for the works should be from South African manufactures and suppliers. Imported materials shall only be considered under exceptional circumstances, based on compelling technical justifications, and subject to the approval by the NDPWI.</p>
	<p>CONTRACT VARIABLES</p> <p>THE SCHEDULE</p> <p>The schedule is the listed variables in this agreement and contains all variables referred to in this document including specific changes made to JBCC® documentation. It is divided into part 1: contract data completed by the employer and part 2: contract data completed by the tenderer. Part 1 must be completed in full and included in the tender documents. Both the part 1 and part 2 form part of this agreement.</p> <p>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. Reference to clause numbers in the JBCC Principal Building Agreement are shown in [square brackets] in this contract data e.g. [3.1].</p>

PART 1: CONTRACT DATA COMPLETED BY THE EMPLOYER:

A PROJECT INFORMATION

A 1.0 Works [1.1]

Works description	Refer to document PG01.2 (EC) – Scope of Works for detailed description
The extent of the works includes alterations, repairs and refurbishment of existing finance offices, including services such wet services, mechanical works, electrical works, civils works, etc.	

Tender / Quotation no: PT24/019

A 2.0 Site [1.1]

Erf / stand number	Erf 7
Site address	REM of Erf 7 Joint Support Base Garrison, Thaba Tshwane Military Base
Township / Suburb	Centurion
City / Town	Pretoria
Province	Gauteng
Local authority	Not applicable
GPS Coordinates	25°47'42"S, 28°08'51"E

A 3.0 EMPLOYER AND ITS REPRESENTATIVE

A 3.1 Employer:

Official Name of Organ of State / Public Sector Body	Government of the Republic of South Africa in its Department of Public Works & Infrastructure		
Business registration number	Not applicable	VAT number	Not applicable
E-mail	kgaogelo.ledwaba@dpw.gov.za	Telephone	012 310 5264
Postal address	Private Bag x 229 Pretoria Central Pretoria 0001		
Physical address	AVN Gebou Building, 251 Nana Sita St Pretoria Central Pretoria 0001		

A 3.2 Employer's representative:

Name	Kgaugelo Ledwaba	Telephone number	012 406 1654
E-mail	Kgaogelo.Ledwaba@dpw.gov.za	Mobile number	060 868 7518
Postal address	Private Bag x 229 Pretoria Central Pretoria 0001		
Physical address	AVN Gebou Building, 251 Nana Sita St152 Pretoria Central Pretoria 0001		

Tender / Quotation no: PT24/019

A 4.0	Principal Agent [1.1; 6.2]	Discipline	Principal Agent
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Name	Sasekile Architects		
Legal entity of above	(Pty) Ltd	Contact person	Gideon Schoonraad
Practice number	N/A	Telephone number	N/A
Country	South Africa	Mobile number	082 853 3770
E-mail	gideon@schoonraadarch.co.za		
Postal address	P O Box 152 Grabouw Elgin Valley 7160		
Physical address	P O Box 152 Grabouw Elgin Valley 7160		

A 5.0	Agent [1.1; 6.2]	Discipline	Architect
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Name	Sasekile Architects		
Legal entity of above	(Pty) Ltd	Contact person	Gideon Schoonraad
Practice number	N/A	Telephone number	N/A
Country	South Africa	Mobile number	082 853 3770
E-mail	gideon@schoonraadarch.co.za		
Postal address	P O Box 152 Grabouw Elgin Valley 7160		
Physical address	P O Box 152 Grabouw Elgin Valley 7160		

A 6.0	Agent [1.1; 6.2]	Discipline	Quantity Surveyor
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Name	Pro-Serve Consulting		
Legal entity of above	(Pty) Ltd	Contact person	Fumani Nkuna
Practice number	18265008	Telephone number	012 661 3435
Country	South Africa	Mobile number	072 592 6166
E-mail	info@proservegroup.co.za		
Postal address	P O Box 16611 Lyttelton Centurion 0140		
Physical address	37 Via Salara Crescent, Irene Corporate Corner Office Park Irene Centurion insert postal code		

Tender / Quotation no: PT24/019

A 7.0	Agent [1.1; 6.2]	Discipline	Civil Engineer
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Name	Civil Concepts		
Legal entity of above	(Pty) Ltd	Contact person	Andreas van Wyk
Practice number	1995/012428/07	Telephone number	012 460 0008
Country	South Africa	Mobile number	082 537 3004
E-mail	andreas@civilconcepts.co.za		
Postal address	P O Box 36148 Menlopark Pretoria 0102		
Physical address	50 15th Str, Corner Justice Mahomed and 17th Str Menlopark Pretoria 0102		

A 8.0	Agent [1.1; 6.2]	Discipline	Structural Engineer
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Name	Civil Concept		
Legal entity of above	(Pty) Ltd	Contact person	Andreas van Wyk
Practice number	1995/012428/07	Telephone number	012 460 0008
Country	South Africa	Mobile number	082 537 3004
E-mail	andreas@civilconcepts.co.za		
Postal address	P O Box 36148 Menlopark Pretoria 0102		
Physical address	50 15 th Str, Corner Justice Mahomed and 17 th Str Menlopark Pretoria 0102		

A 9.0	Agent [1.1; 6.2]	Discipline	Electrical Engineer
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Name	Mothapo Consulting Enginners		
Legal entity of above	(Pty) Ltd	Contact person	Elias Mabitsela
Practice number	N/A	Telephone number	010 977 7776
Country	South Africa	Mobile number	082 412 8116
E-mail	elm@mothapo.com		
Postal address	Mothapo Consulting Engineers P O Box 50781 Midrand 1685		
Physical address	Unit 23 Block C, Cedar Tree Office Park Cnr Cedar and Stinkwood Close Fourways 2191		

Tender / Quotation no: PT24/019

A 10.0	Agent [1.1; 6.2]	Discipline	Mechanical Engineer
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Name	JH System Engineers		
Legal entity of above	(Pty) Ltd	Contact person	Johann Teesen
Practice number	N/A	Telephone number	012 807 0172
Country	South Africa	Mobile number	072 307 3081
E-mail	johannt@jhse.co.za		
Postal address	P O Box 73620 Lynnwood Ridge Pretoria 0046		
Physical address	Wapadrand Office Park 90 Kingbolt Crescent Wapadrand 0050		

A 11.0	Agent [1.1; 6.2]	Discipline	Health and Safety
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Name	Global Safety Consultants		
Legal entity of above	(Pty) Ltd	Contact person	Henk Horn
Practice number	N/A	Telephone number	083 822 5152
Country	South Africa	Mobile number	083 822 5152
E-mail	henk@globalsafetyconsultants.co.za		
Postal address	616 A Bruins Avenue Roseville Pretoria 0084		
Physical address	616 A Bruins Avenue Roseville Pretoria 0084		

A 12.0	Agent [1.1; 6.2]	Discipline	
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Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address			
Physical address			

Tender / Quotation no: PT24/019

B CONTRACT INFORMATION

B 1.0 Definitions [1.1]

Bills of quantities: System/Method of measurement	Standard system of measurement of building works 7 th edition
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B 2.0 Law, regulations and notices [2.0]

Law applicable to the works, state country [2.1]	Law of the Republic of South Africa
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B 3.0 Offer and acceptance [3.0]

Currency applicable to this agreement [3.2]	South African Rand
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B 4.0 Documents [5.0]

The original signed agreement is to be held by the principal agent [5.2], if not, indicate by whom	Employer
Number of copies of construction information issued to the contractor at no cost [5.6] (3 Copies of all relevant construction documentation – this to includes 1 priced Bills of Quantities and 2 unpriced Bills of Quantities)	3

Documents comprising the agreement	Page numbers
The JBCC® Principal Building Agreement, Edition 6.2 May 2018	1 to 30
DPW-04 (EC): CONTRACT DATA: JBCC PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)	1 to 31
The JBCC® General Preliminaries for use with the JBCC® Principal Building Agreement, Edition 6.2 May 2018	1 to 31
Drawings as per drawing register issued with the tender	As issued
Specifications issued with the tender	As issued
Schedules issued with the tender	As issued
Bills of Quantities issued with the tender	As issued
Addenda as issued during tender stage, if applicable	As issued
Returnable documents	As received

B 5.0 Employer's agents [6.0]

Authority is delegated to the following agents to issue contract instructions and perform duties for specific aspects of the works [6.2] [6.7 [CD]]	Principal Agent
Principal agent's and agents' interest or involvement in the works other than a professional interest [6.3]	
None	

Tender / Quotation no: PT24/019

B 6.0 Insurances [10.0]

Insurances by contractor NB: Insurances submitted must be issued by either an insurance company duly registered in terms of the Insurance Act [Long-Term Insurance Act, 1998 (Act 52 of 1998) or Short-Term Insurance Act, 1998 (Act 53 of 1998)] or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990). Insured amounts to include VAT.			
	New works [10.1.1] With a deductible not exceeding 5% of each and every claim	Contract sum plus 10%	Not Applicable
Or	Works with practical completion in sections [10.2] With a deductible not exceeding 5% of each and every claim	Contract sum plus 10%	Not Applicable
Or	Works with alterations and additions [10.3] (reinstatement value of existing structures with or including new works) With a deductible not exceeding 5% of each and every claim	Contract sum plus 10%	Applicable
	Direct contractors [10.1.1; 10.2] where applicable, to be included in the contract works insurance	RPQS to determine value	Not Applicable
	Free issue [10.1.1; 10.2] where applicable, to be included in the contract works insurance	RPQS to determine value	Not Applicable
	Escalation, professional fees and reinstatement costs must be included in the above respective insurances		Applicable
	Supplementary insurance [10.1.2; 10.2]	Contract sum plus 10%	Applicable
	Public liability insurance [10.1.3; 10.2]	R 5 000 000	Applicable
	Removal of lateral support insurance [10.1.4; 10.2]	R PQS to determine value	Not Applicable
	Other insurances [10.1.5]		
	Hi Risk Insurance Refer B18.0 [10.1.5.1]	R 2 000 000	Applicable
	Other insurances: If applicable, description 1:	R PQS to determine value	Not Applicable
	Other insurances; If applicable, description 2:	R PQS to determine value	Not Applicable

Tender / Quotation no: PT24/019

B 7.0 Obligations of the employer [12.1]

Existing premises will be in use and occupied [12.1.2]	Applicable
If applicable, description: The work will be executed on a live site with staff and the general public continuing their operations. However, the building where work is taking place will not be in use.	
Restriction of working hours [12.1.2]	Applicable
If applicable, description: 07H30 to 16H00	
Natural features and known services to be preserved by the contractor [12.1.3]	Applicable
If applicable, description: - Existing water line - Existing sewer line - Existing electrical cables	
Restrictions to the site or areas that the contractor may not occupy [12.1.4]	Applicable
If applicable, description: No building to be occupied during the duration of the project, except for the one where work is taking place.	
Supply of free issue of material and goods [12.1.10]	Not Applicable
If applicable, description:	

B 8.0 Appointment of Nominated Subcontractors [14.0]

Not Applicable	If applicable, description of specialisation
Specialisation 1	
Specialisation 2	
Specialisation 3	
Specialisation 4	
Specialisation 5	

B 9.0 Appointment of Selected Subcontractors [15.0]

Not Applicable	If applicable, description of specialisation
Specialisation 1	
Specialisation 2	
Specialisation 3	
Specialisation 4	
Specialisation 5	

Tender / Quotation no: PT24/019

B 10.0 Appointment of Direct Contractors [16.0]

Not Applicable	If applicable, description of extent of work [12.1.11]
Extent of work	
Extent of work	
Extent of work	
Extent of work	
Extent of work	

B 11.0 Works to be completed in sections [20.1]

Not Applicable	If applicable, description of sections
Section 1	
Section 2	
Section 3	
Section 4	
Section 5	
Section 6	
Remainder of the works.	

B 12.0 Contract period [B18: 1.2], Construction period [B18: 1.1], Possession of site [12.1.5], Practical Completion [19.0; 20.0], Works Completion Refer B18.0 [19.8], Final Completion [21] and Penalties [24.0]

B12.1 Contract Period

Contract period [B18: 1.2]: Period in months as indicated, include the time from the date of award (commencement date) for submitting contractual obligatory documents, submission of Health & Safety Plan and approval, period for obtaining the Construction Permit (if applicable), the Construction Period and the Defect Liability Period up to and including Final Completion	
The contract period is determined as follows (Period/s indicated in months):	
Period to submit contractual obligatory documents including submission and approval of health and safety plan by the appointed Health & Safety Agent	60 w/days

Tender / Quotation no: PT24/019

Period to obtain Construction Permit from Department of Labour upon approval of the Health & Safety Plan by the appointed Health & Safety Agent	10 w/days
Total construction period for the Works as a whole up to and including Practical Completion, as indicated below [24.1]	12 months
Period to achieve Works Completion Refer B18.0 [19.8]	7 w/days
Defect liability period up to and including Final Completion	3
Total Contract Period [B18: 1.2]	15 months
Penalty amount per calendar day for late submission of contractual obligatory documents: Ten percent (10%) of the penalty amount per calendar day for late Practical Completion, excluding VAT. [24.1]	R 250.00

B12.2 Construction Period for completion of the Works as a whole

Construction period [B18: 1.2] and Practical Completion for the Works as a whole [19.0] The time for achieving Practical Completion of the whole of the Works is measured from the date of possession of the site by the contractor inclusive of all public holidays, special non-working days and builders' holiday shut down periods .	Applicable
The date for practical completion for the works as a whole shall be the period in months as indicated, starting from the date of possession of the site by the contractor inclusive of all special non-working days and builders' holiday shut down periods [12.2.7; 24.1]	12 months
Period for inspection in working days by the principal agent [19.3]	5 w/days
Penalty amount per calendar day for late Practical Completion , excluding VAT. [24.1]	R2500.00
Penalty amount per calendar day for late Works Completion Refer B18.0 [19.8]: Thirty percent (30%) of penalty amount per calendar day for late Practical Completion, excluding VAT.	R 750.00
Penalty amount per calendar day for late Final Completion [21]: Fifteen percent (15%) of penalty amount per calendar day for late Practical Completion, excluding VAT.	R 375.00

B12.3 Construction Period for completion of the Works in portions

Construction period [B18: 1.1] and Practical completion for portions of the Works [20.0]	Not Applicable					
Portions of the Works in sections:	1	2	3	4	5	6
Period for inspection by the principal agent in working days [19.3]						
The date for practical completion shall be the period in months as indicated from the date of possession of the site by the contractor [12.2.7; 24.1]						

Tender / Quotation no: PT24/019

The date for practical completion for the whole of the Works, if applicable shall be the period in months as indicated from the date of possession of the site by the contractor inclusive of all public holidays, special non-working days and builders' holiday shut down periods [12.2.7; 24.1]	12 months
Penalty for late Practical Completion, if completion in sections is required , excluding VAT	
The penalty amount per day for failing to complete section 1 of the Works is:	R
The penalty amount per day for failing to complete section 2 of the Works is:	R
The penalty amount per day for failing to complete section 3 of the Works is:	R
The penalty amount per day for failing to complete section 4 of the Works is:	R
The penalty amount per day for failing to complete section 5 of the Works is:	R
The penalty amount per day for failing to complete section 6 of the Works is:	R
The penalty amount per day for failing to complete the whole of the Works, if applicable, is:	R
Penalty amount per calendar day for late Works Completion Refer B18.0 [19.8]: To be calculated at Thirty percent (30%) of penalty / calendar day to complete Select , excluding VAT	
Penalty amount per calendar day for late Final Completion [21]: To be calculated at Fifteen percent (15%) of penalty / calendar day to complete Select , excluding VAT	

B 13.0 Criteria to achieve Practical Completion [19.0; 20.0]

Criteria to achieve Practical Completion not covered in the definition of practical completion	
13.1	Obtain Occupation Certificate from the relevant authority prior to issuing the Practical Completion certificate
13.2	All relevant CoCs must be submitted to the Principal Agent.
13.3	All guarantees must be submitted to the Principal Agent.
13.4	Training on electrical, security and mechanical installations is required. Minimum of at least 3 sessions.
13.5	Maintenance / operating manuals. Soft copy and hard copy to submitted to the Principal Agent.
13.6	
13.7	
13.8	
13.9	
13.10	

Tender / Quotation no: PT24/019

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

B 14.0 Defects liability period [21.0]

Extended defects liability period: Refer B18.0 [21.13]

Applicable	If applicable, description of applicable elements
14.1	Air conditioning system and plant
14.2	Security system/s (e.g. Access control, Intruder alarm, etc.) system and plant
14.3	Electrical equipment (e.g. Electric operated doors, Electric motors, etc.)
14.4	
14.5	
14.6	
14.7	
14.8	
14.9	
14.10	

B 15.0 Payment [25.0]

Date of month for issue of regular payment certificates Refer B18.0 [25.2]	25
Contract price adjustment / Cost fluctuations Refer [25.3.4; 26.9.5]	Applicable
If applicable, method to calculate	CPAP
Employer shall pay the contractor within: Refer B18.0 [25.10]	Thirty (30) calendar days

B 16.0 Dispute resolution [30.0]

Mediation	Applicable
Name of nominating body	Association of Arbitrators (Southern Africa)
Appointment of Mediator	State Attorney
Litigation	Court with Jurisdiction

Tender / Quotation no: PT24/019

B 17.0 JBCC® General Preliminaries - selections



Provisional bills of quantities [P2.2]		Applicable
Availability of construction information [P2.3]		Applicable
Previous work - dimensional accuracy - details of previous contract(s) [P3.1]		Applicable
Previous work - defects - details of previous contract(s) [P3.2]		Applicable
Inspection of adjoining properties - details [P3.3]		Applicable
Handover of site in stages - specific requirements [P4.1]		Not Applicable
Enclosure of the works - specific requirements [P4.2]		Applicable
Geotechnical and other investigations - specific requirements [P4.3]		Applicable
Existing premises occupied - details [P4.5]		Applicable
Services - known - specific requirements [P4.6]		Applicable
Water [P8.1]	By contractor	Applicable
	By employer	Select
	By employer – metered	Select
Electricity [P8.2]	By contractor	Applicable
	By employer	Select
	By employer – metered	Select
Ablution and welfare facilities [P8.3]	By contractor	Applicable
	By employer	Select
Communication facilities - specific requirements [P8.4]		Applicable
Protection of the works - specific requirements [P11.1]		Applicable
Protection / isolation of existing works and works occupied in sections - specific requirements [P11.2]		Applicable
Disturbance - specific requirements [P11.5]		Applicable
Environmental disturbance - specific requirements [P11.6]		Applicable

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B 18.0 SPECIFIC CHANGES MADE TO JBCC® DOCUMENTATION

[Details of changes made to the provisions of **JBCC** standard documentation]

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

1.2	<p>Definitions</p> <p>The following definitions replace corresponding definitions or are added to the definitions in the JBCC PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018), whatever the case may be.</p> <p>ADVERSE WEATHER CONDITIONS: Adverse weather and inclement weather has the same meaning and used interchangeably and means any weather conditions i.e.: Rain, wind, snow, frost, temperature (cold or heat) that are not in the norm for the area where the construction takes place and during which no work is possible on site.</p> <p>AGREEMENT: The completed Form of Offer and Acceptance, the completed JBCC® Principal Building Agreement and contract data for organs of state and other public sector bodies, the contract drawings, the priced document and any other documents reduced to writing and signed by the authorised representative or representatives of the parties.</p> <p>CONSTRUCTION PERIOD: The period commencing on the date of possession of the site by the contractor and ending on the date of practical completion.</p> <p>CONTRACT PERIOD: The period commencing on the date of the letter of acceptance and ending on the date of final completion.</p> <p>COST FLUCTUATION shall mean contract price adjustment provision (CPAP) for the adjustment of fluctuation in the cost of labour, plant, material and goods as stated in the schedule.</p> <p>DEFAULT INTEREST: No clause.</p> <p>GUARANTEE FOR CONSTRUCTION: A security in terms of the DPWI's Guarantee for Construction form/s, obtained by the contractor from an institution approved by the employer [CD].</p> <p>INTEREST: The interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the rate as determined by the Minister of Finance from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No 1 of 1999) as amended, calculated as simple interest, in respect of debts owing to the State, and will be the rate as published by the Minister of Justice and Correctional Services from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No 55 of 1975) as amended, calculated as simple interest, in respect of debts owing by the State.</p> <p>LETTER OF ACCEPTANCE: The letter of formal acceptance of the Contractor's or Service Provider's Tender / Bid, issued and signed by the Employer.</p> <p>PAYMENT CERTIFICATE: A certificate issued at regular agreed intervals [CD] by the principal agent to the parties certifying the amount due and payable in terms of clause 25.3.</p> <p>PRINCIPAL AGENT: The person or entity appointed by the employer and named in the contract data for organs of state and other public sector bodies. In the event of a principal agent not being appointed, then all the duties and obligations of a principal agent as detailed in the agreement shall be fulfilled by the employer's representative as named in the contract data for organs of state and other public sector bodies.</p>
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CONTRACT SPECIFIC DATA

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

The following contract specific data, referring to the General Conditions of Contract for Construction Works, JBCC PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018), are applicable to this Contract:	
3.3	Replace clause with the following: This agreement shall come into force on the date of letter of acceptance and continue to be of force and effect until the end of the latent defects liability period [22.0] notwithstanding termination [29.0] or the certification of final completion [21.0] and final payment [25.0].
4.2	Refer to clause 6.7 [CD].
4.3	Replace clause with the following: Where a contractor cedes any right or any monies due to or to become due under this agreement as security in favour of a financial institution, the prior written consent of the employer, which consent shall not be unreasonably withheld, must be obtained.
5.2	Replace last sentence with the following: The original signed agreement shall be held by the Employer.
5.4	Replace clause with the following: The Bills of Quantities shall not be used as a specification of material and goods or methods unless so instructed by the Principal Agent. The contractor may not use the Bills of Quantities for purpose of ordering material. All dimensions and quantities must be determined on site before ordering. In the event of discrepancy between the drawings and Bills of Quantity, the drawings shall take preference.
5.5	Replace clause with the following: The parties may publish or disclose on any platform only the contract scope and contract amount.
6.5	Replace clause with the following: Where the principal agent and/or an agent fails to act or is unable to act or ceases to be the principal agent or an agent in terms of this agreement, the employer may appoint another principal agent and/or an agent, be it temporary or permanently.
6.7	Add the following as clause 6.7: In terms of the clauses listed hereunder, the employer has retained its authority and has not given a mandate to the principal agent, notwithstanding other provisions in the contract. The employer shall sign all documents in relation to clauses 4.2, 14.1.4, 14.4.1, 14.6, 15.1.4, 15.4.1, 23.1, 23.2, 23.3, 23.7, 23.8, 26.1, 26.7, 26.12.
7.2	Replace first sentence with the following: Any design responsibility undertaken by a subcontractor shall not devolve on the contractor except for items that require specific component design and or compatibility design and or shop drawings and or the assembly thereof.
8.4	Replace clause with the following: The contractor shall bear the full risk of damage to and/or destruction of the works by whatever cause during construction of the works and hereby indemnifies and holds harmless the employer against any such damage. The contractor shall take such precautions and security measures and other steps for the protection and security of the works as the contractor may deem necessary.
9.2.7	Add the following to the end of the first sentence: “.... due to no fault of the contractor”.

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9.2.9	No clause.
9.2.10	No clause.
9.3	Add the following as clause 9.3: The employer's rights to claim damages for the contractor's omissions and actions will not be affected.
10.1	Replace clause with the following: The party responsible shall effect and keep the respective insurances [CD] in force, in favour of the employer as beneficiary, from the date of possession of the site until the issue of the certificate of practical completion and with an extension to cover the contractor's obligations after the date of practical completion [8.2.2].
10.1.5.1	Add the following as clause 10.1.5.1: Hi Risk Insurance In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable sub-surface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:
10.1.5.1.1	Add the following as clause 10.1.5.1.1: Damage to the works The contractor shall, from the date of possession of the site until the date of the certificate of practical completion, bear the full risk of and hereby indemnifies and holds harmless the employer against any damage to and/or destruction of the works consequent upon a catastrophic ground movement as mentioned above. The contractor shall take such precautions and security measures and other steps for the protection of the works as he may deem necessary. When so instructed to do so by the principal agent, the contractor shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the works and to rebuild, restore, replace and/or repair the works, at the contractor's own costs.
10.1.5.1.2	Add the following as clause 10.1.5.1.2: Injury to persons or loss of or damage to property The contractor shall be liable for and hereby indemnifies and holds harmless the employer against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above. The contractor shall be liable for and hereby indemnifies the employer against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property, or personal property, or property contiguous to the site, whether belonging to or under the control of the employer or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract.
10.1.5.1.3	Add the following as clause 10.1.5.1.3: It is the responsibility of the contractor to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.1.5.1.1 and 10.1.5.1.2. Without limiting the contractor's obligations in terms of the contract, the contractor shall, within twenty-one (21) calendar days of the date of letter of acceptance, but before commencement of the works, submit to the employer proof of such insurance policy.

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10.1.5.1.4	Add the following as clause 10.1.5.1.4: The employer shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the contractor's default of his obligations as set out in 10.1.5.1.1; 10.1.5.1.2 and 10.1.5.1.3. Such losses or damages may be recovered from the contractor or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the employer and the contractor and for this purpose all these contracts shall be considered one indivisible whole.
10.2	Replace clause with the following: Where practical completion in sections is required [20.0), or where the works is for alterations and additions, the contractor shall effect and keep in force contract works insurance [10.1.1], supplementary insurance [10.1.2], public liability insurance [10.1.3] and where applicable, removal of lateral support insurance [10.1.4] and other insurances [10.1.5) in favour of the employer as beneficiary.
10.6	No clause.
10.11	Add the following as clause 10.11 In the event that an insurer dispute the amount of the claim to be paid to the employer, the contractor shall be liable to the employer for the difference between the claim (as determined by the employers QS appointed on the project) made by the employer and the amount that the insurer is willing to pay.
11.1	Add the following to clause 11.1. In respect of contracts with a contract sum up to R1 million, the security to be provided by the contractor to the employer will be a payment reduction of five per cent (5%) of the value certified in the payment certificate (excluding VAT). In respect of contracts with a contract sum above R1 million, the contractor shall have the right to select the security to be provided in terms of C 1.0 Securities, as stated in the schedule. Such security shall be provided to the employer within fifteen (15) working days from contract commencement date. Should the contractor fail to select the security to be provided or should the contractor fail to provide the employer with the selected security within fifteen (15) working days from the contract commencement date, the security in terms of C 1.0 Option C shall be deemed to have been selected. The payment reduction of the value certified in a payment certificate shall be <i>mutatis mutandis</i> in terms of 25.12.1 - 25.12.5.
11.1.1	No clause.
11.1.2	No clause.
11.2.2	No clause.
11.3	No clause.
11.4.1	Replace clause 11.4.1 with the following: Hand over the site to the contractor and withhold an amount equal to ten per cent (10%) of each interim payment certificate until practical completion is achieved. The value certified shall be subject to the adjustments in terms of 25.12.6 to 25.12.10.
11.5	No clause.
11.6	No clause.

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11.7	No clause.
11.8	No clause.
11.9	No clause.
11.10	No clause.
11.11	Add the following as clause 11.11 Where the security as a cash deposit of ten per cent (10%) of the contract sum (excluding VAT) has been selected:
11.11.1	Add the following as clause 11.11.1 The contractor shall furnish the employer with a cash deposit equal in value to ten percent (10%) of the contract sum (excluding VAT) within fifteen (15) working days from the contract commencement date. Failure to furnish the employer with a cash deposit within fifteen (15) working days clause 11.4 will apply <i>mutatis mutandis</i> .
11.11.2	Add the following as clause 11.11.2 The employer shall be entitled to recover expense and loss from the cash deposit in terms of 27.0 provided that the employer notifies the Contractor in which event the employer's entitlement shall take precedence over his obligations to refund the cash deposit security or portions thereof to the contractor.
11.11.3.	Add the following as clause 11.11.3 Within fifteen (15) working days of the date of practical completion of the works the employer shall reduce the cash deposit to an amount equal to three per cent (3%) of the contract value (excluding VAT).
11.11.4	Add the following as clause 11.11.4 Within fifteen (15) working days of the date of final completion of the works the employer shall reduce the cash deposit to an amount equal to one per cent (1%) of the contract value (excluding VAT).
11.11.5	Add the following as clause 11.11.5 On the date of payment of the amount in the final payment certificate, the employer shall refund the remainder of the cash deposit to the contractor.
11.11.6	Add the following as clause 11.11.6 The parties expressly agree that neither the employer nor the contractor shall be entitled to cede the rights to the deposit to any third party.
11.12	Add the following as clause 11.12 Where security as a variable construction guarantee of ten percent (10%) of the contract sum (excluding VAT) has been selected:
11.12.1	Add the following as clause 11.12.1 The contractor shall furnish the employer with an acceptable variable construction guarantee equal in value to ten per cent (10%) of the contract sum (excluding VAT) within fifteen (15) working days after issuance of the letter of acceptance. Failure to submit an acceptable variable construction guarantee within fifteen (15) working days clause 11.4 will apply <i>mutatis mutandis</i> .
11.12.2	Add the following as clause 11.12.2 The variable construction guarantee shall reduce and expire in terms of the Variable Construction Guarantee form included in the invitation to tender.

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11.12.3	Add the following as clause 11.12.3 The employer shall return the variable construction guarantee to the contractor within fourteen (14) calendar days of it expiring.
11.12.4	Add the following as clause 11.12.4 Where the employer has a right of recovery against the contractor in terms of 27.0, the employer shall issue a written demand in terms of the variable construction guarantee.
11.13	Add the following as clause 11.13 Where security is a fixed construction guarantee of five per cent (5%) of the contract sum (excluding VAT) and a five per cent (5%) payment reduction of the value certified in the payment certificate (excluding VAT) has been selected:
11.13.1	Add the following as clause 11.13.1 The contractor shall furnish a fixed construction guarantee to the employer equal in value to five per cent (5%) of the contract sum (excluding VAT).
11.13.2	Add the following as clause 11.13.2 The fixed construction guarantee shall come into force on the date of issue and shall expire on the date of the last certificate of practical completion.
11.13.3	Add the following as clause 11.13.3 The employer shall return the fixed construction guarantee to the contractor within fourteen (14) calendar days of it expiring.
11.13.4	Add the following as clause 11.13.4 The payment reduction of the value certified in a payment certificate shall be <i>mutatis mutandis</i> in terms of 25.12.1 - 25.12.5.
11.13.5	Add the following as clause 11.13.5 Where the employer has a right of recovery against the contractor in terms of 27.0, the employer shall be entitled to issue a written demand in terms of the fixed construction guarantee or may recover from the payment reduction or from both.
11.14.1	Add the following as clause 11.14.1 Where security as a cash deposit of five per cent (5%) of the contract sum (excluding VAT) and a payment reduction of five per cent (5%) of the value certified in the payment certificate (excluding VAT) has been selected:
11.14.2	Add the following as clause 11.14.2 The contractor shall furnish the employer with a cash deposit equal in value to five per cent (5%) of the contract sum (excluding VAT) within fifteen (15) working days from the contract commencement date. Failure to submit a cash deposit within fifteen (15) working days clause 11.4 will apply <i>mutatis mutandis</i> .
11.14.3	Add the following as clause 11.14.3 Within fifteen (15) working days of the date of practical completion of the works the employer shall refund the cash deposit in total to the contractor.
11.14.4	Add the following as clause 11.14.4 The payment reduction of the value certified in a payment certificate shall be <i>mutatis mutandis</i> in terms of 25.12.1 - 25.12.5.
11.14.5	Add the following as clause 11.14.5 Where the employer has a right of recovery against the contractor in terms of 27, the employer may recover from the payment reduction or cash deposit or from both.

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11.15	Add the following as clause 11.15 Where security as a payment reduction of ten per cent (10%) of the value certified in the payment certificate (excluding VAT) has been selected:
11.15.1	Add the following as clause 11.15.1 The payment reduction of the value certified in a payment certificate shall be <i>mutatis mutandis</i> in terms of 25.12.6 to 25.12.10.
11.15.2	Add the following as clause 11.15.2 The employer shall be entitled to recover expense and loss from the cash deposit in terms of 27.0 provided that the employer notifies the Contractor in which event the employer's entitlement shall take precedence over his obligations to refund the cash deposit security or portions thereof to the contractor.
11.16	Add the following as clause 11.16 Payments made by the guarantor to the employer in terms of the fixed or variable construction guarantee shall not prejudice the rights of the employer or contractor in terms of this agreement.
11.17	Add the following as clause 11.17 Should the contractor fail to furnish the security in terms of 11.2 the employer, in his sole discretion, and without notification to the contractor, is entitled to change the contractor's selected form of security to that of a ten per cent (10%) payment reduction of the value certified in the payment certificate (excluding VAT).
12.1.1	No Clause.
12.1.5	Replace clause with the following: Give possession of the site to the contractor within ten (10) working days after approval of the Health and Safety Plan or the issue of a construction permit by the Department of Labour, if applicable, after the contractor complied with the terms of 12.2.22.
12.1.6	No clause.
12.1.8	No clause.
12.2.2	Replace clause with the following: The priced Bills must be submitted to the Employer within fourteen (14) calendar days from date of request. Where the priced document contains errors or discrepancies and/or prices considered by the employer or principal agent to be imbalanced or unreasonable the employer or principal agent and the contractor shall adjust such prices without any change to the contract sum .
12.2.5	Replace clause with the following: Effect and keep in force insurances in favour of the employer as beneficiary where the contractor is responsible for providing insurances [10.0] [CD].
12.2.13	Replace clause with the following: Designate a competent person full time on site to continuously administer and control the works on site and to receive and implement notices and contract instructions on behalf of the contractor.
12.2.22	Insert the following clause as 12.2.22: Within fourteen (14) working days of the date of the letter of acceptance submit to the principal agent an acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993).

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12.2.23	Insert the following clause as 12.2.23: The contractor shall within reasonable time inform the agents regarding inspection of the works before covering / closing [B 12.0].
14.1.4	Refer to clause 6.7 [CD].
14.1.5	No clause.
14.4.1	Replace "principal agent" with "employer" [6.7 [CD]].
14.6	Refer to clause 6.7 [CD].
15.0	See clause 6.7 above for clauses, 15.5.
15.1.2	Replace clause with the following: The principal agent shall call for tenders from a list of tenderers agreed between the contractor and the employer.
15.1.4	Refer to clause 6.7 [CD].
15.1.5	No clause.
15.4.1	Replace "principal agent" with "employer" [6.7 [CD]].
17.4	Replace clause with the following: The contractor shall comply with and duly execute all contract instructions except any contract instruction for additional work issued after the date of practical completion other than making good physical loss and repairing damage to the works in terms of 8.0 and 21.
17.6	Add the following as clause 17.6: Minutes of meetings shall not constitute a site instruction unless reduced to a written contract instruction issued by the principal agent in terms of this contract / agreement.
19.5	Replace clause with the following: On issue of the only or last certificate of practical completion the employer shall be entitled to possession of the works and the site. On issue of the certificate of practical completion for a section, the employer shall be entitled to possession of such section.
19.8	Add the following as: 19.8 WORKS COMPLETION (1) Within seven (7) calendar days of the date of practical completion the principal agent shall issue to the contractor a works completion list defining the outstanding work and defects apparent at the date of practical completion to be completed or rectified to achieve works completion. (2) Where, in the opinion of the contractor, the works completion list has been completed the contractor shall notify the principal agent who shall inspect within seven (7) calendar days of receipt of such a notice. Where, in the opinion of the principal agent, the Works Completion list: (2)(a) Has been satisfactorily completed, the principal agent shall forthwith issue a certificate of Works Completion to the contractor with a copy to the employer

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19.8 Continued	<p>(2)(b) Has not been satisfactorily completed, the principal agent shall forthwith identify the works completion list items that are not yet complete and inform the contractor thereof. The contractor shall repeat the procedure in terms of 19.8(2)</p> <p>(3) Should the principal agent not issue a works completion list, in terms of 19.8 (1) or 19.8 (2) (b), within seven (7) calendar days from the end of the inspection period, the contractor shall notify the employer and principal agent. Should the principal agent not issue such Works Completion list within seven (7) calendar days of receipt of such notice, the employer may within seven (7) calendar days issue to the contractor a Works Completion list. Should the employer:</p> <p>(3)(a) Not issue such works completion list within seven (7) calendar days, then the certificate of Works Completion shall be deemed to have been issued on the date of expiry of the initial notice period and works completion shall be deemed to have been achieved on such date</p> <p>(3b) Issue a works completion list and the work on Works Completion list not have been completed or where further defects have become apparent, the employer shall forthwith identify such items on the updated works completion list and notify the contractor. The contractor shall repeat the procedure in terms of 19.8 (2) (b) until such items have been completed to the satisfaction of the employer</p> <p>(4) Should the works completion list not be completed to the satisfaction of the employer within a period of twenty (20) working days of the issue final works completion list the contractor shall be liable to a daily penalty as described in B13.</p> <p>(5) The defects liability period in terms of 21.1 shall commence with the issue or deemed issue of the certificate of Works Completion in terms of 19.8(2)(a) or 19.8(3).</p>
20.2.1.A	<p>Add the following as: 20.2.1.A A certificate of Works Completion [19.8]</p>
21.1	<p>Replace clause 21.1 with the following: The defects liability period for the works shall commence on the calendar day following the date of works completion and end at midnight (00:00) ninety (90) calendar days from the date of works completion [CD] or when work on the list for completion has been satisfactorily attended to [21.6], whichever is the later (if we use works completion).</p>
21.6	<p>Replace clause 21.6 with the following: On the expiry of the ninety (90) calendar days defects liability period [21.1] for items not indicated as items with an extended liability as indicated in B14 and on receipt of the contractor's notice to the principal agent.</p> <p>And/or</p> <p>On the expiry of the defects liability period as indicated in B14, for items indicated in B14 and on receipt of the contractor's notice to the principal agent, the principal agent shall:</p> <p>(1) inspect the works And within ten (10) working days either issue a list for final completion detailing all outstanding work or defects that must be attended to, or rectified to achieve final completion or</p> <p>(2) issue the certificate of final completion to the contractor with a copy to the employer for that part of the works where defects liability period has expired.</p>
21.6.1.	<p>Omit clause.</p>

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21.6.2	Omit clause.
21.13	Add the following as clause 21.13 The ninety (90) calendar day defects liability period for the works [21.1] is replaced with an extended defects liability period of three hundred and sixty-five (365) calendar days in respect of the listed applicable elements in B14.
21.14	Add the following as clause 21.14 Penalties will be applied if the items on the completion list have not been attended to within a period of ninety (90) calendar days [21.1]. If additional defect items have being added to the list during this period, then the Principal Agent and Contractor will agree on a revised completion date. Failing in achieving the revised date will result in penalties being applied [B12.0].
22.3.2	No clause.
23.1	Refer to clause 6.7 [CD].
23.2	Refer to clause 6.7 [CD].
23.2.13	No clause.
23.3	Replace 23.3 with the following: Further circumstances that delays practical completion due to any other cause beyond the contractor's reasonable control that could not have reasonably been anticipated and provided for which the contractor may be entitled to a revision of the date for practical completion, with or without an adjustment of the contract value as determined by the Employer [6.7 CD].
23.7	Refer to clause 6.7 [CD].
23.8	Refer to clause 6.7 [CD].
24.1	Replace clause 24.1 with the following: Where the contractor fails to bring the works , or a section thereof, to practical-, works-, or final- completion by the applicable completion date [B10 CD], or the revised applicable completion date, the contractor shall be liable to the employer for the penalty [B10 CD].
24.2	Replace clause 24.2 with the following: Where the employer elects to levy such penalty the employer , or the principal agent on instruction from the employer , shall give notice thereof to the contractor . The principal agent shall determine the penalty due from the later of the date for practical- works-, or final- completion [B10 CD], or the revised date for practical- works-, or final- completion , up to and including the earlier of:
24.2.1	Replace clause 24.2.1 with the following: The actual or deemed date of practical-, works- or final- completion of the works , or a section thereof [23.7.1].
25.2	Replace clause 25.2 with the following: The principal agent shall issue at regular agreed intervals [CD] payment certificates, to the contractor with a copy to the employer, up to and including practical completion. Interim Payment certificates may be issued to the contractor between practical completion and the final payment certificate. A payment certificate may be for a nil or negative amount.

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25.3	<p>Add the following to clause 25.3:</p> <p>25.3.12 Monthly Local content report.</p> <p>25.3.13 EPWP / NYS payment register, labour reports and certified ID document of EPWP/ NYS beneficiaries, Contract between Contractor and EPWP/ NYS beneficiaries, attendance register (if applicable).</p> <p>25.3.14 Tax Invoice.</p> <p>25.3.15 Labour intensive report.</p> <p>25.3.16 Contract participation goal and cidb BUILD programme reports.</p>
25.5	No Clause.
25.6	<p>Replace clause 25.6 with the following:</p> <p>Materials and goods will only be certified and paid for upon providing proof of full payment to the supplier and proof of transfer of ownership from the supplier to the contractor by the contractor. Once paid, material and goods shall become the property of the employer and shall not be removed from site without the written authority of the Employer.</p>
25.7.5	No Clause.
25.10	<p>Replace clause 25.10 with the following:</p> <p>The employer shall pay the contractor the amount stipulated in an issued payment certificate, correct in all material respects, within thirty (30) calendar days from the date of receiving the payment certificate and invoice including all other substantiating documentation for items certified in the payment certificate.</p>
25.12	<p>Replace clauses 25.12 to 25.12.3 with the following:</p> <p>The value certified shall be subject to the following percentage adjustments :</p> <p>(Clauses 25.12.1 to 25.12.5 shall be applicable to a contract sum up to R1 million. In the event of a contract sum more than R1 million for Options D & E (C 1.0 Securities [11.0]) Clauses 25.12.1 to 25.12.5 shall be applicable)</p> <p>25.12.1 Where a security is selected in terms of C 1.0 Securities [11.0] the value of the works in terms of 25.1 and of the materials and goods in terms of 25.4 shall be certified in full. The value certified shall be subject to the following percentage adjustments:</p> <p>25.12.2 Ninety-five per cent (95%) of such value in interim payment certificates issued up to the date of practical completion.</p> <p>25.12.3 Ninety-seven per cent (97%) of such value in interim payment certificates issued on the date of works completion and up to but excluding the date of final completion.</p> <p>25.12.4 Ninety-nine per cent (99%) of such value in interim payment certificates issued on the date of final completion and up to but excluding the final payment certificate in terms of 26.</p> <p>25.12.5 One hundred per cent (100%) of such value in the final payment certificate in terms of 26 except where the amount certified is in favour of the employer. In such an event the payment reduction shall remain at the adjustment level applicable to the final payment certificate.</p>

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Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

25.12 Continued	<p>(Clauses 25.12.6 to 25.12.10 shall be applicable to a contract sum more than R1 million for Option C (C 1.0 Securities [11.0])</p> <p>25.12.6 Where security is a payment reduction in term of Option C, the value of the works in terms of 25.1 and materials and goods in terms of 25.4 shall be certified in full. The value certified shall be subject to the following percentage adjustments:</p> <p>25.12.7 Ninety per cent (90%) of such value in interim payment certificates issued up to the date of practical completion.</p> <p>25.12.8 Ninety-seven per cent (97%) of such value in interim payment certificates issued on the date of practical completion and up to but excluding the date of final completion.</p> <p>25.12.9 Ninety-nine per cent (99%) of such value in interim payment certificates issued on the date of final completion and up to but excluding the final payment certificate in terms of 26.</p> <p>25.12.10 One hundred per cent (100%) of such value in the final payment certificate in terms of 26 except where the amount certified is in favour of the employer. In such an event the payment reduction shall remain at the adjustment level applicable to the final payment certificate.</p>
26.1	Refer to clause 6.7 [CD].
26.4.3	Omit clause.
26.7	Refer to clause 6.7 [CD].
26.10	<p>Replace 26.10 with the following:</p> <p>The principal agent shall prepare the final account in consultation with the employer and issue the final account, to the contractor within sixty (60) working days of the date of practical completion.</p>
26.12	Refer to clause 6.7 [CD].
27.1.2	<p>Replace 27.1.2 with the following:</p> <p>Interest due to late payment only.</p>
27.1.4	<p>Replace 27.1.4 with the following:</p> <p>Interest due to late payment only.</p>
27.1.5	No clause.
27.5	<p>Add the following as clause 27.5:</p> <p>Where the employer decides to recover an amount due in terms of 27.2 from a construction guarantee, cash deposit or retention money held as security, the employer shall issue a written demand to the contractor before recovering the amount. Should such amount not be paid to the employer within fourteen (14) calendar days of the date-of notice by the employer, the employer may recover such an amount from the security.</p>

Tender / Quotation no: PT24/019

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

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27.6	Add the following as clause 27.6: Where a provisional sequestration or provisional liquidation order has been granted or where an order has been granted which commences sequestration, liquidation, bankruptcy, receivership, winding-up or any similar effect, against the contractor or this agreement is cancelled in terms of 29, the employer may issue a demand to the guarantor in terms of the construction guarantee or advance payment guarantee held as security.
28.0	No clause.
28.1	No clause.
28.1.1	No clause.
28.1.2	No clause.
28.1.3	No clause.
28.1.4	No clause.
28.1.5	No clause.
28.2	No clause.
28.3	No clause.
28.4	No clause.
29.1.4	Add the following as clause 29.1.4: The contractor's estate has been sequestered, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa.
29.1.5	Add the following as clause 29.1.5: The contractor has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
29.1.6	Add the following as clause 29.1.6: Honour his obligations in terms of clauses 10.1.5.1.3, 11.4.1 and 12.2. sub-clauses 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 19, 20, 22.
29.7	Replace clause 29.7 with the following: The employer, on notice to the contractor, may recover damages from the contractor from the date of termination including, but not limited to, additional costs incurred in the completion, consultant cost, rental of alternative accommodation, invitation of completion tenders, salaries of officials and safeguarding the site, of the remaining work [25.3.7; 27.1.3].
29.9	Replace clause 29.9 with the following: The employer has the right of recovery against the contractor , where applicable, [CD] from: The guarantee for construction (variable) until the final payment has been made; or The guarantee for construction (fixed) until the date of practical completion; or The payment reduction until the final payment is made; or The cash deposit made as security until the final payment is made.
29.14.1	No clause.
29.14.3	No clause.

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29.14.4	No clause.
29.14.5	No clause.
29.14.6	No clause.
29.14.7	No clause.
29.15	No clause.
29.16	No clause.
29.17.3	No clause.
29.17.6	No clause.
29.21.5	No clause.
29.22	No clause.
29.23	No clause.
29.25.3	No clause.
29.25.4	No clause.
29.27	No clause.
30.2	Replace clause 30.2 with the following: Where such disagreement is not resolved within ten (10) working days of receipt of such notice it shall be deemed to be a dispute and shall be submitted to Mediation as a first method of dispute resolution failing which the parties will resort to Litigation.
30.3 to 30.7.7	No clauses.
30.8	Replace clause 30.8 with the following: The parties may, by agreement and at any time before Litigation, refer a dispute to mediation, in which event:
30.8.1	No clause.
30.8.2	Replace clause 30.8.2 with the following: The appointment of a mediator, the procedure, and the status of the outcome shall be agreed between the parties.
30.8.3	Replace clause 30.8.3 with the following: Regardless of the outcome of a mediation the parties shall bear their own costs concerning the Mediation and equally share the costs of the mediator and related expenses.
30.9	Replace clause 30.9 with the following: Institution of Litigation shall be commenced and process served within three (3) year from the date of existence of the dispute, failing which the dispute shall lapse.
30.10	No clause.
30.12	No clause.

Tender / Quotation no: PT24/019

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

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B 19.0 CONTRACT PARTICIPATION GOAL TARGETS AND CIDB B.U.I.L.D. PROGRAMME

The contractor shall achieve in the performance of the contract the following Contract Participation Goals (CPGs) as described in PG-01.2 (EC): Scope of Work and PG-02.2 (EC): Pricing Assumptions and in accordance with the feasibility study, which forms part of the specifications in the CPG Section of the Specification of this contract.

(a)	Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(b)	Minimum Targeted Local Building Material Suppliers Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(c)	Minimum Targeted Local Labour Skills Development Contract Participation Goal in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(d)	cidb BUILD Programme: Minimum Targeted Enterprise Development Contract Participation Goal in accordance with the cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(e)	cidb BUILD Programme: Minimum Targeted Contract Skills Development Goal in accordance with the cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 48491 of 28 April 2023. and the cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.	Not applicable
(f)	DPWI National Youth Service training and development programme (NYS) – Condition of Contract.	Not applicable
(g)	Labour Intensive Works – Condition of Contract.	Not applicable
(h)		Select
(i)		Select

Tender / Quotation no: PT24/019

PART 2: CONTRACT DATA COMPLETED BY THE TENDERER:

C TENDERER'S SELECTIONS

C 1.0 Securities [11.0]

In respect of contracts with a contract sum up to R1 million, the security to be provided by the contractor to the employer will be a payment reduction of five per cent (5%) of the value certified in the payment certificate (excluding VAT).

In respect of contracts with a contract sum more than R1 million, the security to be provided by the contractor to the employer will be selected by the Contractor as indicated below:

Guarantee for construction: Select Option A, B, C, D or E

Option A	cash deposit of 10 % of the contract sum (excluding VAT)
Option B	variable construction guarantee of 10 % of the contract sum (excluding VAT) (DPW-10.3 EC)
Option C	payment reduction of 10% of the value certified in the payment certificate (excluding VAT)
Option D	cash deposit of 5% of the contract sum (excluding. VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding. VAT)
Option E	fixed construction guarantee of 5% of the contract sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) (DPW-10.1 EC)]

NB: Insurances submitted must be issued by either an insurance company duly registered in terms of the Insurance Act [Long-Term Insurance Act, 1998 (Act 52 of 1998) or Short-Term Insurance Act, 1998 (Act 53 of 1998)] or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

Guarantee for payment by employer [11.5.1; 11.10]	Not applicable
Advance payment, subject to a guarantee for advance payment [11.2.2; 11.3]	Not applicable

Tender / Quotation no: PT24/019

C 2.0 Payment of preliminaries [25.0]

Contractor's selection

Select Option A or B

Where the **contractor** does not select an option, Option A shall apply

Payment methods

Option A	The preliminaries shall be paid in accordance with an amount prorated to the value of the works executed in the same ratio as the amount of the preliminaries to the contract sum , which contract sum shall exclude the amount of preliminaries . Contingency sum(s) and any provision for cost fluctuations shall be excluded for the calculation of the aforesaid ratio
Option B	The preliminaries shall be paid in accordance with an amount agreed by the principal agent and the contractor in terms of the priced document to identify an initial establishment charge, a time-related charge and a final dis-establishment charge. Payment of the time-related charge shall be assessed by the principal agent and adjusted from time to time as may be necessary to take into account the rate of progress of the works

Lump sum contract

Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations.

C 3.0 Adjustment of preliminaries [26.9.4]

Contractor's selection

Select Option A or B

Where the **contractor** does not select an option, Option A shall apply.

Provision of particulars

The **contractor** shall provide the particulars for the purpose of the adjustment of **preliminaries** in terms of his selection. Where completion in **sections** is required, the **contractor** shall provide an apportionment of **preliminaries** per **section**.

Option A	An allocation of the preliminaries amounts into Fixed, Value-related and Time-related amounts as defined for adjustment method Option A below, within fifteen (15) working days of the date of acceptance of the tender
Option B	A detailed breakdown of the preliminaries amounts within fifteen (15) working days of possession of the site . Such breakdown shall include, inter alia, the administrative and supervisory staff, the use of construction equipment , establishment and dis-establishment charges, insurances and guarantees, all in terms of the programme

Tender / Quotation no: PT24/019

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Adjustment methods

The amount of **preliminaries** shall be adjusted to take account of the effect which changes in time and/or value have on **preliminaries**. Such adjustment shall be based on the particulars provided by the **contractor** for this purpose in terms of Options A or B, shall preclude any further adjustment of the amount of **preliminaries** and shall apply notwithstanding the actual employment of resources by the **contractor** in the execution of the **works**.

Option A	<p>The preliminaries shall be adjusted in accordance with the allocation of preliminaries amounts provided by the contractor, apportioned to sections where completion in sections is required</p> <p>Fixed - An amount which shall not be varied.</p> <p>Value-related - An amount varied in proportion to the contract value as compared to the contract sum. Both the contract sum and the contract value shall exclude the amount of preliminaries, contingency sum(s) and any provision for cost fluctuations.</p> <p>Time-related - An amount varied in proportion to the number of calendar days extension to the date of practical completion to which the contractor is entitled with an adjustment of the contract value [23.2; 23.3] as compared to the number of calendar days in the initial construction period [26.9.4].</p>
Option B	<p>The adjustment of preliminaries shall be based on the number of calendar days extension to the date of practical completion to which the contractor is entitled with an adjustment of the contract value [23.2; 23.3] as compared to the number of calendar days in the initial construction period [26.9.4]. The adjustment shall take into account the resources as set out in the detailed breakdown of the preliminaries for the period of construction during which the delay occurred.</p>

Failure to provide particulars within the period stated

Option A	<p>Where the allocation of preliminaries amounts for Option A is not provided, the following allocation of preliminaries amounts shall apply:</p> <p>Fixed - Ten per cent (10%) Value-related - Fifteen per cent (15%) Time-related - Seventy-five per cent (75%)</p> <p>Where the apportionment of the preliminaries per section is not provided, the categorised amounts shall be prorated to the cost of each section within the contract sum as determined by the principal agent</p>
Option B	<p>Where the detailed breakdown of preliminaries amounts for Option B is not provided, Option A shall apply</p>

Lump sum contract

Where the amount of **preliminaries** is not provided it shall be taken as 7.5% (seven and a half per cent) of the **contract sum**, excluding contingency sum(s) and any provision for cost fluctuations.

C1.3 Form of Guarantee

DPW-10.1 (EC): FIXED CONSTRUCTION GUARANTEE - JBCC 2000 PRINCIPAL BUILDING AGREEMENT (EDITION 6.2 OF MAY 2018)

Director-General
Department of Public Works and Infrastructure
Government of the Republic of South Africa

FOR ATTENTION

Ms Kgaugelo Ledwaba
Private Bag X 229
Pretoria
0001

Sir,

FIXED CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF JBCC 2000 (EDITION 6.2 OF MAY 2018)

1. With reference to the contract between _____
_____ (hereinafter referred to as the "**contractor**") and the Government of the Republic of South Africa in its Department of Public Works and Infrastructure (hereinafter referred to as the "**employer**"), Contract/Tender No: PT24/019, for the Refurbishment of the finance office (hereinafter referred to as the "contract") in the amount of R **insert amount, (insert amount in words)**, (hereinafter referred to as the **contract sum**),
I / We, _____
in my/our capacity as _____ and hereby
representing _____ (hereinafter referred to as the "**guarantor**") advise that the **guarantor** holds at the **employer's** disposal the sum of R **insert amount, (insert amount in words)** being 5% of the **contract sum** (excluding VAT), for the due fulfillment of the contract.
2. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis; and de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed, on receipt of a written demand from the **employer** to do so, stating that the **employer** has a right of recovery against the **contractor** in terms of 33.0 of the contract.
3. Subject to the above, but without in any way detracting from the **employer's** rights to adopt any of the procedures provided for in the contract, the said demand can be made by the **employer**, at any stage prior to the expiry of this guarantee.
4. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon the issue of the last final **payment certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.

Tender no: *(Insert Tender Number)*

5. The **employer** shall have the absolute right to arrange his affairs with the **contractor** in any manner which the **employer** deems fit and the **guarantor** shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the foregoing, any compromise, extension of the **construction period**, indulgence, release or variation of the **contractor's** obligation shall not affect the validity of this guarantee.
6. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the guaranteed amount with the **employer**, whereupon the guarantor's liability ceases.
7. This guarantee is neither negotiable nor transferable, and
 - (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 4 above, or
 - (b) shall lapse on the date of the last **certificate of practical completion**.
8. This guarantee shall not be interpreted as extending the **guarantor's** liability to anything more than payment of the amount guaranteed.

SIGNED AT _____ **ON THIS** _____ **DAY OF**
_____ **20**_____

AS WITNESS

1. _____
2. _____

By and on behalf of

(insert the name and physical address of the guarantor)

NAME: _____

CAPACITY: _____
(duly authorised thereto by resolution attached marked Annexure A)

DATE: _____

- A. **No alterations and/or additions of the wording of this form will be accepted.**
- B. **The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi*, for all purposes arising from this guarantee.**
- C. **This GUARANTEE must be returned to:** _____

DPW-10.3 (EC): VARIABLE CONSTRUCTION GUARANTEE - JBCC 2000 PRINCIPAL BUILDING AGREEMENT (EDITION 6.2 OF MAY 2018)

Director-General
Department of Public Works and Infrastructure
Government of the Republic of South Africa

FOR ATTENTION

Ms Kgaugelo Ledwaba
Private Bag X 229
Pretoria
0001

Sir,

VARIABLE CONSTRUCTION GUARANTEE FOR THE EXECUTION OF A CONTRACT IN TERMS OF JBCC 2000 (EDITION 6.2 OF MAY 2018)

1. With reference to the contract between _____
_____ (hereinafter referred to as the “**contractor**”) and the Government of the Republic of South Africa, in its Department of Public Works and Infrastructure, (hereinafter referred to as the “**employer**”), Contract/Tender No: **PT24/019**, for the **Refurbishment of the finance office** (hereinafter referred to as the “**contract**” in the amount of R **insert amount, (insert amount in words)** (hereinafter referred as the **contract sum**),
I / We, _____
in my/our capacity as _____ and hereby
representing _____ (hereinafter referred to as the “**guarantor**”) advise that the **guarantor** holds at the **employer’s** disposal the sum of R **insert amount, (insert amount in words)** being 10% of the **contract sum** (excluding VAT), for the due fulfillment of the contract.
2. I / We advise that the **guarantor’s** liability in terms of this guarantee shall be as follows:
 - (a) From and including the date on which this guarantee is issued and up to and including the date of payment of the amount in the last final **payment certificate**, the **guarantor** will be liable in terms of this guarantee to the maximum amount of 10% of the **contract sum** (excluding VAT);
 - (b) The **guarantor’s** liability shall reduce to 3 % of the **contract value** (excluding VAT) as determined at the date of the last **certificate of practical completion**, subject to such amount not exceeding 10% of the **contract sum** (excluding VAT).
 - (c) The **guarantor’s** liability shall reduce to 1 % of the **contract value** (excluding VAT) as determined at the date of the last **certificate of final completion**, subject to such amount not exceeding 10 % of the **contract sum** (excluding VAT).
 - (d) This guarantee shall expire on the date of the last **final payment certificate**.
 - (e) The **practical completion certificate** and the **final completion certificate** referred to in this guarantee shall mean the certificates issued in terms of the contract.

Tender no: PT24/019

3. The **guarantor** hereby renounces the benefits of the exceptions *non numeratae pecunia; non causa debiti; excussionis et divisionis*; and *de duobus vel pluribus reis debendi* which could be pleaded against the enforcement of this guarantee, with the meaning and effect whereof I/we declare myself/ourselves to be conversant, and undertake to pay the **employer** the amount guaranteed on receipt of a written demand from the **employer** to do so, stating that the **employer** has a right of recovery against the **contractor** in terms of 33.0 of the contract.
4. Subject to the above, but without in any way detracting from the **employer's** rights to adopt any of the procedures provided for in the contract, the said demand can be made by the **employer** at any stage prior to the expiry of this guarantee.
5. The amount paid by the **guarantor** in terms of this guarantee may be retained by the **employer** on condition that upon the issue of the last **final payment certificate**, the **employer** shall account to the **guarantor** showing how this amount has been expended and refund any balance due to the **guarantor**.
6. The **employer** shall have the absolute right to arrange his affairs with the **contractor** in any manner which the **employer** deems fit and the **guarantor** shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the **guarantor**. Without derogating from the foregoing, any compromise, extension of the construction period, indulgence, release or variation of the **contractor's** obligation shall not affect the validity of this guarantee.
7. The **guarantor** reserves the right to withdraw from this guarantee at any time by depositing the amount guaranteed with the **employer**, whereupon the **guarantor's** liability ceases.
8. This guarantee is neither negotiable nor transferable, and
 - (a) must be surrendered to the **guarantor** at the time when the **employer** accounts to the **guarantor** in terms of clause 5 above, or
 - (b) shall lapse in accordance with clause 2(d) above.
9. This guarantee shall not be interpreted as extending the **guarantor's** liability to anything more than the payment of the amount guaranteed.

SIGNED AT _____ **ON THIS** _____ **DAY OF** _____ **20**__

AS WITNESS

1. _____

2. _____

Tender no: **PT24/019**

By and on behalf of

(insert the name and physical address of the guarantor)

NAME: _____

CAPACITY: _____
(duly authorised thereto by resolution attached marked
Annexure A)

DATE: _____

- A. No alterations and/or additions of the wording of this form will be accepted.
- B. The physical address of the guarantor must be clearly indicated and will be regarded as the guarantor's *domicilium citandi et executandi*, for all purposes arising from this guarantee.
- C. This guarantee must be returned to: _____

Part C2: Pricing Data

C2.1 Pricing Instructions

PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000 PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.</i>				
Tender / Quotation no:	PT24/019	WCS no:	052557	Reference no:	

C2.1 Pricing Assumptions

C2.1.1 BILLS OF QUANTITIES / LUMP SUM DOCUMENT

The **bills of quantities / lump sum 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, Specifications, Drawings and all other relevant documentation.

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all cost and expenses that may be required in and for the completion and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Tender is based.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which only rates are required, or items which already have Prime Cost or Provisional Sums affixed thereto. If the Contractor omits to price any items in the Bill of Quantities, then these items will be considered to have a nil rate or price.

No alterations, erasures, omissions or additions is to be made in the text and/or conditions of these Bills of Quantities. Should any such alterations, amendments, note/s or addition be made, the same will not be recognized, but reading of these Bills of Quantities as originally prepared by the Quantity Surveyor will be adhered to.

The contractor is cautioned that the use of any quantities appearing in these Bills of Quantities for the purpose of ordering material, it is done at own risk and no liability whatsoever will be admitted by the Employer or Quantity Surveyor for the correctness of such Quantities. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

The prices and rates to be inserted by the Tenderer in the Bills of Quantities shall be the full inclusive prices to be paid by the Employer for the work described. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Market related prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out. The Employer reserves the right to balance the Bill rates where deemed necessary within the Tendered Amount.

A price or rate is to be entered against each item in the Bills of Quantities, whether the quantities are stated or not. An item against which no rate is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word "included" or abbreviations thereof) is entered against an item, it will also be regarded as a nil rate having been entered against that item, i.e. that there is no charge for that item. The Tenderer may be requested to clarify nil rates, or items regarded as having nil rates; and the Employer may also perform a risk analysis with regard to the reasonableness of such rates.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

Should the full intent and meaning of any description not be clear, the bidder shall, before submission of his tender, call for a written directive from the principal agent, failing which it shall be assumed that the contractor has allowed in his pricing for materials and workmanship in terms of National Best Practice.

All items for which terminology such as “inclusive” or “not applicable” have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

The Tenderer is required to check the Bills of Quantities and the numbers of the pages and should any be found to be missing or in duplicate, or should any of the typing be indistinct, or any doubt of obscurity arise as to the meaning of any description or particulars of any item, or if this Tender Enquiry contains any obvious errors, then the Tenderer must immediately inform the Principal Agent and have them rectified or explained in writing as the case may be. No liability whatsoever will be admitted by reason of the Contractor having failed to comply with the foregoing instruction.

The contractor is cautioned that the use of any quantities appearing in these Bills of Quantities for the purpose of ordering material, it is done at own risk and no liability whatsoever will be admitted by the Employer or Quantity Surveyor for the correctness of such Quantities. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

No alterations, erasures, omissions, or additions are allowed to be made to the text and/or conditions contained in these Bills of Quantities. If any such alteration, amendment, note or addition is made, it will not be recognised and the Bills of Quantities will be deemed to be as originally drawn up by the Quantity Surveyor.

A price or rate is to be entered against each item in the Bills of Quantities, whether the quantities are stated or not. An item against which no rate is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word “included” or abbreviations thereof) is entered against an item, it will also be regarded as a nil rate having been entered against that item, i.e. that there is no charge for that item. The Tenderer may be requested to clarify nil rates, or items regarded as having nil rates; and the Employer may also perform a risk analysis with regard to the reasonableness of such rates.

All items for which terminology such as “inclusive” or “not applicable” have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

The Tenderer shall fill in rates for all items where the words “rate only” appear in the “Total” column. “Rate Only” items have been included where:

- (a) variations of specified components in the make-up of a pay item may be expected; and
- (b) no work under the item is foreseen at tender stage but the possibility that such work may be required is not excluded.

For ‘Rate Only’ items no quantities are given in the “Quantity” column but the quoted rate shall apply in the event of work under this item being required. The Tenderer shall however note that in terms of the Tender Data the Tenderer may be asked to reconsider any such rates which the Employer may regard as unbalanced.

Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the “PW 371” and the principles contained in the latest version of the Standard System for Measuring Builders’ Work in South Africa. It is the intention that the abbreviated descriptions be fully described when read with the applicable measuring system and the relevant preambles and/or specifications. However, should the full intent and meaning of any description not be clear, the bidder shall, before submission of his tender, call for a written directive from the principal agent, failing which it shall be assumed that the contractor has allowed in his pricing for materials and workmanship in terms of National Best Practice.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

The price quoted against each item of this Bills of Quantities shall cover the full inclusive cost of the complete work to which it refers, as described in the Conditions of Contract and Specifications and as shown on the Drawings and shall allow for labour, material, transporting, loading, storage, supervision, commissioning, wastage, as well as the builders profit and attendance.

The Tenderer must ensure that he fully completes all columns of the Bill of Quantities including the Final Summary. The fully priced bill of quantities must be submitted with the tender or The Final Summary and the Section Summary pages MUST be returned with the tender document as indicated the PA-03 Notice and Invitation to Tender / PA-04 Notice and Invitation for quotation.

The tenderers are to ensure that they have read and understood the project specifications included in C3: Scope of Work. All the information provided in the Scope of Works form part of the work and must be included in the rates.

“The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself before submitting his tender (as far as is practicable) as to:

- (a) the form and nature of the Site and its surroundings, including subsurface conditions,
- (b) the hydrological and climatic conditions,
- (c) the extent and nature of work and materials necessary for the execution and completion of the Works,
- (d) the means of access to the Site and the accommodation he may require

and, in general, shall be deemed to have obtained all information (as far as is practicable) as to risks, contingencies and all other circumstances which may influence or affect his Tender”

C2.1.2 VALUE ADDED TAX

The contract sum must include for Value Added Tax (VAT). All rates, provisional sums, etc. in the bills of quantities / lump sum document shall be in Rands and cents and shall include all levies and taxes (other than VAT). VAT will be added in the summary of the Bill of Quantities. The rates must however be net (exclusive of VAT) with VAT calculated and added to the total value thereof in the Final Summary. All rates and amounts quoted in the Bill of Quantities

C2.1.3 CORRECTION OF ENTRIES

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialled by the Tenderer.

C2.1.4 ARITHMETICAL ERRORS

Arithmetical errors found in the Bill of Quantities as a result of faulty multiplication of addition, will be corrected by the Engineer at the tender evaluation stage, as set out in the Tender Data.

C2.1.5 TRADE NAMES

Tenderers attention is drawn to the fact that wherever trade names or references to any catalogue have been made in these Bills of Quantities, it is purely to establish a standard for the required material. If use is made of any other equally approved material in lieu of the prescribed trade name or catalogue, the necessary price adjustments will be made.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

C2.1.6 CONTRACT DOCUMENTS

The Tenderers are advised to examine the bills of quantities, drawings and specifications including all other contract documents and make themselves thoroughly acquainted with the nature and requirements of the work, as no claim for extra payment in this regard will be entertained. Should any parts of the drawings not be clearly intelligible to the Tender, he must, before submitting his tender, obtain clarification from the Principal Agent.

C2.1.7 FIXED PRICE CONTRACT

The Bills of Quantities document is not a fixed price contract and the Tenderers are to take note that contract price adjustments (CPAP) are applicable to this contract.

C2.1.8 PAYMENTS

Interim valuations and payments will be prepared on a monthly basis, all in terms of the conditions of contract.

The contractor is to note that no payment will be made for materials stored off site and in the case of materials being stored on site, payment will only be made for such materials on condition that they have not been delivered to the site prematurely, a tax invoice and proof of payment (ownership) is submitted by the Contractor.

C2.1.9 ACCOMMODATION ON SITE

It is imperative to note that no living quarters for construction workers on site will not be permitted for the full duration of the contract unless otherwise stated in the contract data or permission be granted by the Employer.

C2.1.10 SUBMISSION OF LOCAL MATERIAL UTILISATION REPORT (LOCAL CONTENT)

Submission of Local Material Utilisation Reports is *not applicable* to this project.

Bidders to note that materials procured for the works should be from South African manufactures and suppliers. Imported materials shall only be considered under exceptional circumstances, based on compelling technical justifications, and subject to the approval by the NDPWI.

The contractor shall be responsible for record keeping, documenting and submission of monthly local material utilization report with supporting documentation to the Employer's representative within 7 working days of the beginning of the successive month, indicating the percentage targets achieved in terms of DTI&C designated industry/sector/sub-sector schedule as per the PA36 and Annexures C attached to the tender document. The final percentage achievement to be reconciled upon completion of the project and form part of the final account. Allowance must be made for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

C2.1.11 CONTRACT PARTICIPATION GOALS

The contractor shall achieve in the performance of this contract the following Contract Participation Goals (CPGs) as indicated below:

Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

Monthly progressive reports to be submitted to the Employer's representative indicating the percentage targets achieved which must be reconciled upon completion of the project and to form part of the final account.

C2.1.11.1 MINIMUM TARGETED LOCAL BUILDING MATERIAL MANUFACTURERS CONTRACT PARTICIPATION GOAL

The Minimum Targeted Local Building Material Manufacturers CPG is *not applicable* to this project.

Provision is made within the Contract Participation Goal section in the Bill of Quantities for the Minimum Targeted Local Building Material Manufacturers CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.1. Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.1.11.2 MINIMUM TARGETED LOCAL BUILDING MATERIAL SUPPLIERS CONTRACT PARTICIPATION GOAL

The Minimum Targeted Local Building Material Suppliers CPG is *not applicable* to this project.

Provision is made within the Contract Participation Goal section in the Bill of Quantities for the Minimum Targeted Local Building Material Suppliers CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.2. Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.1.11.3 MINIMUM TARGETED LOCAL LABOUR CONTRACT PARTICIPATION GOAL

The Minimum Targeted Local Labour Skills Development CPG is *not applicable* to this project.

Provision is made within the Contract Participation Goal section in the Bill of Quantities for the Minimum Targeted Local Labour CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.3. Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.1.11.4 MINIMUM TARGETED ENTERPRISE DEVELOPMENT CONTRACT PARTICIPATION GOAL

The Minimum Targeted Enterprise Development Contract Participation Goal is *not applicable* to this project.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

A provisional amount has been allowed for within the Contract Participation Goal section in the Bill of Quantities for the Minimum Targeted Enterprise Development CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.4. The provisional amount allowed is for the appointment of training coordinator, mentor, training service providers and training of the beneficiary enterprises. The provisional amount will be adjusted in accordance with the actual Contract Amount (Awarded tender amount excluding allowance, provisional amounts and VAT) of the awarded bid.

Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

The contractor shall complete a separate bill of quantities upon the award of the project and identification of the respective beneficiaries and the appointment of the training coordinator, mentor, training service providers of which the cost will be offset against the provisional amount allowed in the Bills of Quantities.

C2.1.11.5 MINIMUM TARGETED TARGETED CONTRACT SKILLS DEVELOPMENT GOALS (CSDG)

The Minimum Targeted Contract Skills Development CPG is *not applicable* to this project.

A provisional amount has been allowed for within the Contract Participation Goal section in the Bill of Quantities for the Minimum Targeted Skills Development CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.5. The provisional amount allowed is for:

- stipends payable to the beneficiaries
- appointment of training coordinator
- appointment of mentor (where applicable)
- appointment of training service providers
- other additional costs as per Table 3 of the Standard

The provisional amount will be adjusted in accordance with the actual Contract Amount (Awarded tender amount excluding allowance, provisional amounts and VAT) of the awarded bid.

Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

The contractor shall complete a separate bill of quantities upon the award of the project and identification of the respective beneficiaries. The CPG value to be achieved will be based on the actual contract amount which will be offset against the provisional amount allowed for within the Contract Participation Goal section in the Bill of Quantities.

Payment

The contractor shall upon the appointment of beneficiaries, provide a breakdown of all the associated costs. The contractor shall provide a payment schedule as to how the CPG costs will be claimed against for inclusion in the monthly payment certificates.

(a) Payment to the contractor to accommodate Part/Full Occupational qualification and Trade qualifications;

Should the contractor select Part/Full Occupational qualification and Trade qualifications learners, then the employer shall make provision for payment to the contractor as indicated in Table 3 of the Standard.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

The contract skills participation goal, expressed in Rand, shall not be less than the contract amount multiplied by a percentage (%) factor given in Table 2 in the Standard for the applicable class of construction works. Should the contractor select Part/Full Occupational qualification and Trade qualifications learners, then the employer shall make provision for payment to the contractor as indicated in Table 2 of the Standard.

Table 2: Contracting skills development goals for different classes of engineering and construction works contracts

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No 48491 Government Gazette, 23 April 2023 (Table 2, Page 7)

Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004		Construction skills development goal (CSDG) (%)
Designation	Description	
CE	Civil Engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

No provision for an additional payment item for the payment of the supervisor and/or mentors for the provision of training as provided for in the Contract Participation Goal section in the Bill of Quantities for the training of part/full time occupational learners and/or trade qualification learners. The associated cost is deemed to be included in general supervision on site.

The contractor shall complete a separate bill of quantities upon award, indicating the type and number of beneficiaries as well as the associated Notional Cost of Training to be provided, on which payment will be based.

(b) Payment to the contractor to accommodate Work Integrated Learners and Candidates for professional registration:

Should the contractor select Work Integrated Learners and/or Candidates for professional registration, then the employer shall make provision for payment to the contractor as indicated in Table 3 of the Standard.

Provisional amounts have been included in the Contract Participation Goal section in the Bill of Quantities for the training of Work Integrated Learners and Candidates for professional registration. The contractor shall price his Profit and Attendance (all inclusive of associated costs to the contractor for implementation and reporting), based on the provisional amount in the Contract Participation Goal section in the Bill of Quantities.

The contractor shall complete a separate bill of quantities upon award, indicating the type and number of beneficiaries as well as the associated Notional Cost of Training to be provided, on which payment will be based.

The CPG value to be achieved will be based on the contract amount as defined by the Standard, which will be offset against the provisional amount allowed for within the Contract Participation Goal section in the Bill of Quantities.

The contractor shall apportion the cost of accommodating work integrated learners (P1 and P2 learners) and candidates for professional registration by using Table 3 in the Standard and this cost will be used to determine the Rand value and will be used in determining the contract participation goal in the Bills of Quantities.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

Table 3: The notional cost of providing training opportunities per quarter

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 48491 Government Gazette, 23 April 2023 (table 3, Page 9)

Type of Training Opportunity	Provision for stipends (Unemployed learners only)	Provisions for mentorship	Provisions for additional costs*	Total costs	
				Unemployed learners	Employed learners
Method 1					
Occupational qualification	R7 000	R0	R9 000	R16 000	R9 000
Method 2					
TVET College graduates	R14 000	R0	R9 000	R23 000	N/A
Apprenticeship	R14 000	R0	R12 000	R26 000	R12 000
Method 3					
P1 and P2 learners	R24 000	R20 000	R4 500	R48 500	N/A
Method 4					
Candidates with a 3 year diploma	R37 000	R20 000	R4 500	R61 500	R20 000
Candidates with 4 year qualification	R47 000	R20 000	R4 500	R71 500	R20 000

Note: The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI. Should the rates increase after bid award or during construction the rates will be adjusted as a provisional item.

Example: Training Target Calculation for a R65,7m GB contract

Contract amount R65 700 000
Contract duration 12 Months
CSDG 0,50%
Minimum CSDG target $0,50\% \times R65\,700\,000 = R328\,500$ (Minimum requirement)

Skills Types	Number of learners	Notional Cost / Learner / Quarter	Notional cost/learner/year	Total Notional Cost over 12 months Contract
Method 2: Workplace learning opportunities, with unemployed TVET graduates	1	R23 000	R92 000	R92 000
Method 3: Candidacy for an unemployed learner with a 3-year qualification	1	R61 500	R246 000	R246 000
Total	2			R338 000

C2.1.11.6 NATIONAL YOUTH SERVICE TRAINING AND DEVELOPMENT PROGRAMME

The National Youth Service Training and Development Programme is *not applicable* to this project.

The programme shall be implemented in terms of the Implementation of the National Youth Service Programme under the Expanded Public Works (EPWP) and shall be priced in the CPG section of the Bills of Quantities.

Provision has been made within the Contract Participation Goal section in the Bill of Quantities for the National Youth Service Training and Development Programme CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.6.

**PG-02.2 (EC) PRICING ASSUMPTIONS - JBCC 2000
PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)**

Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.1.11.7 LABOUR-INTENSIVE WORKS

Labour Intensive Works is *not applicable* to this project.

Where labour intensive work is specified in the Bill of Qualities and indicated by "LI" the contractor must price for and include in rates. Contractors are expected to use their initiative to identify additional activities that can be done labour-intensively to comply with the set minimum labour intensity target. Provision has been made within the Contract Participation Goal section in the Bill of Quantities for the monthly reporting illustrating the value of the works executed under Labour Intensive Works CPG in the execution of this project as described in PG-01.2 (EC) SCOPE OF WORKS C3.6.7 and any other supplementary specifications.

Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.2 Submission of Accrual Reports

The Contractor shall submit accrual reports to the client representative at the end of March and September each year for the duration of the Service Contract period from the date of appointment up to and including project closeout. This is to ensure that PMTE complies with the accounting framework GRAP, which requires that PMTE disclose all its accruals as at the end of each reporting date. Allowance must be made for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

C2.2 Bills of Quantities / Lump Sum Document

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Item No	Quantity	Rate	Amount
<u>SECTION NO. 1</u>			
<u>BILL NO. 1</u>			
<u>PRELIMINARIES</u>			
<u>MEANING OF TERMS "TENDER/TENDERER"</u>			
Any reference to the words "Tender" or "Tenderer" herein and/or in any other documentation shall be construed to have the same meaning as the words "Bid" or "Bidder"			
<u>BUILDING AGREEMENT AND PRELIMINARIES</u>			
The JBCC Principal Building Agreement (Edition 6.2 - May 2018) prepared by the Joint Building Contracts Committee shall be the applicable building agreement, amended as hereinafter described			
The JBCC Principal Building Agreement contract data for organs of state and other public sector bodies form an integral part of this agreement			
The JBCC General Preliminaries (May 2018) published by the Joint Building Contracts Committee for use with the JBCC Principal Building Agreement (Edition 6.2 - May 2018) shall be deemed to be incorporated in these bills of quantities/ lump sum document, amended as hereinafter described			
The contractor is deemed to have referred to the abovementioned documents for the full intent and meaning of each clause			
The clauses in the abovementioned documents are hereinafter referred to by clause number and heading only			
Where any item is not relevant to this agreement such item is marked N/A signifying "not applicable"			
Carried Forward		R	
Section No. 1 Bill No. 1 Preliminaries and General			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

<p style="text-align: right;">Brought Forward</p> <p>Where standard clauses or alternatives are not entirely applicable to this agreement such amendments, modifications, corrections or supplements as will apply are given under each relevant clause heading and such amendments, modifications, corrections or supplements shall take precedence notwithstanding anything to the contrary contained in the abovementioned documents</p> <p><u>TENDERER'S SELECTIONS</u></p> <p>Before submission of his tender the contractor is to complete the tenderer's selections in the contract data for organs of state and other public sector bodies</p> <p><u>STRUCTURE OF THIS PRELIMINARIES BILL</u></p> <p>Section A : A recital of the headings of the individual clauses in the aforementioned JBCC Principal Building Agreement</p> <p>Section B: A recital of the headings of the individual clauses in the aforementioned JBCC General Preliminaries</p> <p>Section C : Any special clauses to meet the particular circumstances of the project</p> <p><u>PRICING OF PRELIMINARIES</u></p> <p>Should the contractor select Option A in the contract data for organs of state and other public sector bodies for the adjustment of preliminaries, the amounts entered against the relevant items in these preliminaries are to be divided into one or more of the three categories provided namely fixed (F), value related (V) and time related (T)</p>					R
<p style="text-align: right;">Carried Forward</p> <p>Section No. 1 Bill No. 1 Preliminaries and General</p>					R

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward	R
<u>PRICING OF BILLS OF QUANTITIES</u>	
<p>The contractor is to allow opposite each item for all costs in connection therewith. All prices to include, unless otherwise stated, for all materials, fabrication, conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting, fitting and fixing in position, cutting and waste (except where to be measured in accordance with the standard system of measurement), patterns, models and templates, plant, temporary works, returning of packaging, duties, taxes (other than Value Added Tax), imposts, establishment charges, overheads, profit and all other obligations arising out of this agreement.</p> <p>Items left unpriced will be deemed to be covered in prices against other items throughout these bills of quantities and no claim for any extras arising out of the contractor's omission to price any item will be entertained</p> <p>Prices for all construction equipment, temporary works, services and other items shall include for the supply, maintenance, operating cost and subsequent removal and making good as necessary</p>	
<u>VALUE ADDED TAX</u>	
<p>Provision is made in the summary page of these bills of quantities / lump sum document for the inclusion of Value Added Tax (VAT)</p>	
Carried Forward	R
Section No. 1 Bill No. 1 Preliminaries and General	

[illegible]

[illegible]

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

	Brought Forward		R	
	<p>Replace Clause 3.3 with the following: This agreement shall come into force on the date of letter of acceptance and continue to be of force and effect until the end of the latent defects liability period [22.0] notwithstanding termination [29.0] or the certification of final completion [21.0] and final payment [25.0]</p> <p>F:..... V:..... T:.....</p>	Item		
4	A4.0 CESSION AND ASSIGNMENT			
	<p>F:..... V:..... T:.....</p>	Item		
5	A5.0 DOCUMENTS			
	<p>Replace last sentence of Clause 5.2 with the following: The original signed agreement shall be held by the Employer</p> <p>Replace Clause 5.4 with the following: The Bills of Quantities shall not be used as a specification of material and goods or methods unless so instructed by the Principal Agent. The contractor may not use the Bills of Quantities for purpose of ordering material. All dimensions and quantities must be determined on site before ordering. In the event of discrepancy between the drawings and Bills of Quantity, the drawings shall take preference</p> <p>Replace Clause 5.5 with the following: The parties may publish or disclose on any platform only the contract scope and contract amount</p> <p>F:..... V:..... T:.....</p>	Item		
6	A6.0 EMPLOYER'S AGENTS			
	Carried Forward		R	
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>			

	Brought Forward		R
	<p>Replace Clause 6.5 with the following:</p> <p>Where the principal agent and/or an agent fails to act or is unable to act or ceases to be the principal agent or an agent in terms of this agreement, the employer shall appoint another principal agent and/or an agent</p> <p>F:..... V:..... T:.....</p>	Item	
7	<p>A7.0 DESIGN RESPONSIBILITY</p> <p>Clause 7.0 - Design responsibility</p> <p>F:..... V:..... T:.....</p>	Item	
	<u>INSURANCES AND SECURITIES (A8-A11)</u>		
8	<p>A8.0 WORKS RISK</p> <p>Clause 8.0 - Works risk</p> <p>Replace Clause 8.4 with the following: The contractor shall bear the full risk of damage to and/or destruction of the works by whatever cause during construction of the works and hereby indemnifies and holds harmless the employer against any such damage. The contractor shall take such precautions and security measures and other steps for the protection and security of the works as the contractor may deem necessary</p> <p>F:..... V:..... T:.....</p>	Item	
9	A9.0 INDEMNITIES		
10	<p>Clause 9.0 - Indemnities</p> <p>F:..... V:..... T:.....</p>	Item	
11	A10.0 INSURANCES		
	Carried Forward		R
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>		

	Brought Forward		R
	<p>Replace Clause 10.1 with the following:</p> <p>The party responsible shall effect and keep the respective insurances [CD] in force, in favour of the employer as beneficiary , from the date of possession of the site until the issue of the certificate of practical completion and with an extension to cover the contractors obligations after the date of practical completion [8.2.2]</p> <p>Add the following as Clause 10.1.5.1:</p> <p>High risk insurance In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable sub-surface conditions that might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply</p>		
12	<p>Add the following as Clause 10.1.5.1.1 Damage to the works</p> <p>The contractor shall, from the date of possession of the site until the date of the certificate of practical completion, bear the full risk of and hereby indemnifies and holds harmless the employer against any damage to and/or destruction of the works consequent upon a catastrophic ground movement as mentioned above. The contractor shall take such precautions and security measures and other steps for the protection of the works as he may deem necessary</p> <p>When so instructed to do so by the principal agent, the contractor shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the works and to rebuild, restore, replace and/or repair the works, at the contractor's own costs</p>		
	Carried Forward		R
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>		

GAUTENG DEPARTMENT OF PUBLIC WORKS
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	Brought Forward			R
13	<p>10.1.5.1.2 Injury to persons or loss of or damage to property</p> <p>The contractor shall be liable for and hereby indemnifies and holds harmless the employer against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above</p> <p>The contractor shall be liable for and hereby indemnifies the employer against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property, or personal property, or property contiguous to the site, whether belonging to or under the control of the employer or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract</p>			
14	<p>F:..... V:..... T:.....</p>	Item		
15	<p>Contract works insurance to be effected by Contractor</p> <p>For the amount of: The Contract Sum plus 20% with a deductible of R20 000.00</p> <p>SASRIA insurance required:</p> <p>F:..... V:..... T:.....</p>	Item		
16	<p>Public liability insurance to be effected by Contractor</p> <p>For the amount of: R10 000 000.00 With a deductible of: R10 000.00 per claim</p> <p>F:..... V:..... T:.....</p>	Item		
	Carried Forward			R
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>			

	Brought Forward		R
17	<p>A11.0 SECURITIES</p> <p>Replace Clause 11.10</p> <p>The contractor shall waive his lien or right of continuing possession of the works.</p> <p>Add the following as Clause 11.12: Where security as a variable construction guarantee of ten percent (10%) of the contract sum (excluding VAT) has been selected:</p> <p>Add the following as Clause 11.12.1: The contractor shall furnish the employer with an acceptable variable construction guarantee equal in value to ten per cent (10%) of the contract sum (excluding VAT) within fourteen (14) working days after issuance of the letter of acceptance. Failure to submit an acceptable variable construction guarantee within fourteen (14) working days Clause 11.4 will apply mutatis mutandis.</p> <p>Add the following as Clause 11.12.2: The variable construction guarantee shall reduce and expire in terms of the Variable Construction Guarantee form included in the invitation to tender.</p> <p>Add the following as Clause 11.12.3: The employer shall return the variable construction guarantee to the contractor within fourteen (14) calendar days of it expiring.</p> <p>Add the following as Clause 11.12.4: Where the employer has a right of recovery against the contractor in terms of 27.0, the employer shall issue a written demand in terms of the variable construction guarantee.</p> <p>Add the following as Clause 11.13: Where security as a fixed construction guarantee of five per cent (5%) of the contract sum (excluding VAT) and a five per cent (5%) payment reduction of the value certified in the payment certificate (excluding VAT) has been selected:</p> <p>Add the following as Clause 11.13.1: The contractor shall furnish a fixed construction guarantee to the employer equal in value to five per cent (5%) of the contract sum (excluding VAT).</p>		
	Carried Forward		R
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>		

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<p>Add the following as Clause 11.13.2: The fixed construction guarantee shall come into force on the date of issue and shall expire on the date of the last certificate of practical completion.</p> <p>Add the following as Clause 11.13.3: The employer shall return the fixed construction guarantee to the contractor within fourteen (14) calendar days of it expiring.</p> <p>Add the following as Clause 11.13.4: The payment reduction of the value certified in a payment certificate shall be mutatis mutandis in terms of 25.12.1 - 25.12.5.</p> <p>Add the following as Clause 11.13.5: Where the employer has a right of recovery against the contractor in terms of 27.0, the employer shall be entitled to issue a written demand in terms of the fixed construction guarantee or may recover from the payment reduction or from both.</p> <p>Add the following as Clause 11.15: Where security as a payment reduction of ten per cent (10%) of the value certified in the payment certificate (excluding VAT) has been selected.</p> <p>Add the following as Clause 11.15.1: The payment reduction of the value certified in a payment certificate shall be mutatis mutandis in terms of 25.12.6 to 25.12.10.</p> <p>Add the following as Clause 11.15.2: The employer shall be entitled to recover expense and loss from the cash deposit in terms of 27.0 provided that the employer notifies the Contractor in which event the employer's entitlement shall take precedence over his obligations to refund the cash deposit security or portions thereof to the contractor.</p> <p>Add the following as Clause 11.16: Payments made by the guarantor to the employer in terms of the fixed or variable construction guarantee shall not prejudice the rights of the employer or contractor in terms of this agreement.</p> <p>Add the following as Clause 11.17: Should the contractor fail to furnish the security in</p>	
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	terms of 11.2 the employer, in his sole discretion, and without notification to the contractor, is entitled to change the contractor's selected form of security to that of a ten per cent (10%) payment reduction of the value certified in the payment certificate (excluding VAT).			
	F:..... V:..... T:.....	Item		
	<u>EXECUTION (A12- A17)</u>			
18	A12.0 OBLIGATIONS OF THE PARTIES			
19	Office			
	The contractor shall provide, maintain and remove on practical completion air conditioned office with suitable tables and chairs for meetings to be held on the site . Such offices shall be kept clean and fit for use at all times [12.2.18]			
	F:..... V:..... T:.....	Item		
20	Notice board			
	The contractor shall erect in a position approved by the principal agent , maintain and remove on practical completion a notice board recommended by the South African Institute of Architects and as approved by the principal agent listing the names and logos of the employer , the contractor and the professional consultants. No subcontractor or supplier notice boards may be erected unless permission is granted by the principal agent for such notice boards to be erected [12.2.18]	Item		
21	A13.0 SETTING OUT			
	F:..... V:..... T:.....	Item		
22	A14.0 NOMINATED SUBCONTRACTORS			
	F:..... V:..... T:.....	Item		
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	Brought Forward		R	
23	A15.0 SELECTED SUBCONTRACTORS			
	F:..... V:..... T:.....	Item		
24	A16.0 DIRECT CONTRACTORS			
	Work by direct contractors: TBC			
	F:..... V:..... T:.....	Item		
25	A17.0 CONTRACT INSTRUCTIONS			
	F:..... V:..... T:.....	Item		
	<u>COMPLETION (A18- A24)</u>			
26	A18.0 INTERIM COMPLETION			
	F:..... V:..... T:.....	Item		
27	A19.0 PRACTICAL COMPLETION			
	F:..... V:..... T:.....	Item		
28	A20.0 COMPLETION IN SECTIONS			
	F:..... V:..... T:.....	Item		
29	A21.0 DEFECTS LIABILITY PERIOD AND FINAL COMPLETION			
	F:..... V:..... T:.....	Item		
30	A22.0 LATENT DEFECTS LIABILITY PERIOD			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	
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	Brought Forward		R
31	<p>A23.0 REVISION OF THE DATE FOR PRACTICAL COMPLETION</p> <p>Add clause 23.9 with the following:</p> <p>An extension of the construction period will only be considered when work on the critical path of the programme for the works is affected</p> <p>The removal or replacement of materials and/or workmanship that do not conform to description shall not constitute grounds for an extension of the construction period nor for an adjustment to the contract sum</p> <p>Power failures and/or "loadshedding"</p> <p>The contractor shall not be entitled to a revision of the date of practical completion as a result of electric power failures and/or "loadshedding" [23:1 - 8]</p> <p>F:..... V:..... T:.....</p>	Item	
32	<p>A24.0 PENALTY FOR LATE OR NON-COMPLETION</p> <p>Replace Clause 24.1 with the following:</p> <p>Where the contractor fails to bring the works, or a section thereof, to practical-, works-, or final- completion by the applicable completion date [CD], or the revised applicable completion date, the contractor shall be liable to the employer for the penalty [CD]</p> <p>Penalties will be calculated as per Department of Public Works and Infrastructure Guideline "Procurement Documentation Guidelines For Building Contracts QS002 dated February 2023"</p> <p>Contract duration: 12 months including national builder's break</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward		R
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	Brought Forward		R
	<u>PAYMENT (A25 - A27)</u>		
33	A25.0 PAYMENT		
	Prices submitted		
	Where prices are submitted by the contractor or subcontractor during the progress of the works in respect of contract instructions or in regard to a claim under the terms of this agreement and notwithstanding the fact that such prices may be used in an interim payment certificate , there is to be no presumption of acceptance. Should the principal agent wish to accept any such prices prior to the issue of the certificate of final completion , it shall be in writing		
	F:..... V:..... T:.....	Item	
34	A26.0 ADJUSTMENT OF THE CONTRACT VALUE AND FINAL ACCOUNT		
	Fluctuations in costs		
	All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the contractor [26.9.5]		
	F:..... V:..... T:.....	Item	
35	A27.0 RECOVERY OF EXPENSE AND/OR LOSS		
	F:..... V:..... T:.....	Item	
	SUSPENSION AND TERMINATION		
36	A28.0 SUSPENSION BY THE CONTRACTOR		
	F:..... V:..... T:.....	Item	
37	A29.0 TERMINATION		
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	Brought Forward		R	
	F:..... V:..... T:.....	Item		
38	A30.0 DISPUTE RESOLUTION			
	F:..... V:..... T:.....	Item		
	<u>SECTION B: GENERAL PRELIMINARIES</u>			
	<u>Definitions and interpretation (B1)</u>			
39	Clause 1.1 - Definitions			
	F:..... V:..... T:.....	Item		
40	Clause 1.2 - Interpretation			
	F:..... V:..... T:.....	Item		
	<u>Documents (B2)</u>			
41	Clause 2.1 - Checking of documents			
	F:..... V:..... T:.....	Item		
42	Clause 2.2 - Provisional bills of quantities			
	F:..... V:..... T:.....	Item		
43	Clause 2.3 - Availability of construction information			
	F:..... V:..... T:.....	Item		
44	Clause 2.4 - Ordering of materials and goods			
	F:..... V:..... T:.....	Item		
	Carried Forward		R	
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	Brought Forward		R	
	<u>Previous work and adjoining properties (B3)</u>			
45	Clause 3.1 - Previous work - dimensional accuracy F:..... V:..... T:.....	Item		
46	Clause 3.2 - Previous work - defects F:..... V:..... T:.....	Item		
47	Clause 3.3 - Inspection of adjoining properties F:..... V:..... T:.....	Item		
	<u>The site (B4)</u>			
48	Clause 4.1 - Handover of site as a whole Site Description: Joint Support Base Garrison Thabatshwane Military Base, Centurion, Pretoria 0187 F:..... V:..... T:.....	Item		
49	Clause 4.2 - Enclosure of the works F:..... V:..... T:.....	Item		
50	Clause 4.3 - Geotechnical and other investigations F:..... V:..... T:.....	Item		
51	Clause 4.4 - Encroachments F:..... V:..... T:.....	Item		
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	Brought Forward		R	
52	<p>Clause 4.5 - Existing premises occupied</p> <p>The contractor should make provision for executing the works on a fully operational army base with staff on the premises. The works shall be executed with no interruptions to the operations of the base.</p> <p>F:..... V:..... T:.....</p>	Item		
53	<p>Clause 4.6 - Services - known</p> <p>F:..... V:..... T:.....</p> <p><u>Management of contract (B5)</u></p>	Item		
54	<p>Clause 5.1 - Management of the works</p> <p>F:..... V:..... T:.....</p>	Item		
55	<p>Clause 5.2 - Progress meetings</p> <p>F:..... V:..... T:.....</p>	Item		
56	<p>Clause 5.3 - Technical meetings</p> <p>F:..... V:..... T:.....</p> <p><u>Samples, shop drawings and manufacturer's instructions (B6)</u></p>	Item		
57	<p>Clause 6.1 - Samples of materials</p> <p>The Contractor at no additional cost to the employer shall provide samples of material when requested or instructed by the Principal Agents or agents for approval</p> <p>F:..... V:..... T:.....</p>	Item		
	Carried Forward		R	
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	Brought Forward		R	
58	<p>Clause 6.2 - Workmanship samples</p> <p>The Contractor at no additional cost to the employer shall prepare samples of workmanship when requested or instructed by the Principal Agents or agents for approval</p> <p>F:..... V:..... T:.....</p>	Item		
59	<p>Clause 6.3 - Shop drawings</p> <p>F:..... V:..... T:.....</p>	Item		
60	<p>Clause 6.4 - Compliance with manufacturer's instructions</p> <p>F:..... V:..... T:.....</p> <p><u>Deposits and fees (B7)</u></p>	Item		
61	<p>Clause 7.1 - Deposits and fees</p> <p>F:..... V:..... T:.....</p> <p><u>Temporary services (B8)</u></p>	Item		
62	<p>Clause 8.1 - Water</p> <p>F:..... V:..... T:.....</p>	Item		
63	<p>Clause 8.2 - Electricity</p> <p>F:..... V:..... T:.....</p>	Item		
64	<p>Clause 8.3 - Ablution and welfare facilities</p> <p>F:..... V:..... T:.....</p>	Item		
	Carried Forward		R	
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	Brought Forward		R	
65	<p>Clause 8.4 - Communication facilities</p> <p>F:..... V:..... T:.....</p> <p><u>Prime cost amounts (B9)</u></p>	Item		
66	<p>Clause 9.1 - Responsibility for prime cost amounts</p> <p>F:..... V:..... T:.....</p> <p><u>Attendance on subcontractors (B10)</u></p>	Item		
67	Clause 10.1 - General attendance			
68	<p>The contractor shall at his own expense provide the following general attendance on the subcontractors:</p> <p>Access to the site and places where the subcontract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor</p> <p>The provision of water and lighting and single-phase electric power to a position within 50 metres of the place where the subcontract work is to be carried out but excluding water, fuel, and power for commissioning of any installation</p>			
69	<p>The provision of an area for the subcontractor to establish temporary office accommodation and workshops and for the storage of plant and materials</p> <p>The use of erected scaffolding belonging to the contractor, in common with others having the like right, while it remains erected on the site</p> <p>The use, at reasonable times by arrangement of the contractor's erected hoisting equipment</p> <p>F:..... V:..... T:.....</p>	Item		
70	Clause 10.2 - Special attendance			
	Carried Forward		R	
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	Brought Forward		R	
	F:..... V:..... T:.....	Item		
	<u>General (B11)</u>			
71	Clause 11.1 - Protection of the works F:..... V:..... T:.....	Item		
72	Clause 11.2 - Protection/isolation of existing works and works occupied in sections F:..... V:..... T:.....	Item		
73	Clause 11.3 - Security of the works F:..... V:..... T:.....	Item		
74	Clause 11.4 - Notice before covering work F:..... V:..... T:.....	Item		
75	Clause 11.5 - Disturbance Disturbance The contractor shall keep the site , structures, etc well watered during operations to prevent dust and shall provide and erect and remove on completion of the works all necessary temporary dust screens all to the satisfaction of the principal agent F:..... V:..... T:.....	Item		
76	Clause 11.6 - Environmental disturbance F:..... V:..... T:.....	Item		
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	Brought Forward		R
77	Clause 11.7 - Works cleaning and clearing F:..... V:..... T:.....	Item	
78	Clause 11.8 - Vermin F:..... V:..... T:.....	Item	
79	Clause 11.9 - Overhand work F:..... V:..... T:.....	Item	
80	Clause 11.10 - Tenant installations F:..... V:..... T:.....	Item	
81	Clause 11.11 - Advertising F:..... V:..... T:.....	Item	
<u>SECTION C: SPECIFIC PRELIMINARIES</u>			
Warranties for materials and workmanship			
The warranty will not be enforced if the work is damaged by defects in the execution of the works , in which case the responsibility for replacement shall rest entirely with the contractor			
	F:..... V:..... T:.....	Item	
Carried Forward			
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	Brought Forward		R	
82	Overtime Should overtime be required to be worked for any reason whatsoever, the cost of such overtime is to be borne by the contractor unless the principal agent has specifically authorised, prior to execution thereof, that costs for such overtime are to be borne by the employer F:..... V:..... T:.....	Item		
83	Co-operation of the contractor for cost management It is specifically agreed that the contractor accepts the obligation of assisting the principal agent in implementing proper cost management. The contractor will be advised by the principal agent of all cost management procedures which will be implemented to ensure that the contract value does not exceed the budget F:..... V:..... T:.....	Item		
84	Overloading The contractor shall take all necessary steps to ensure that no damage occurs due to overloading of any portion of the works or temporary works eg scaffolding, etc. The contractor shall submit details of his proposed loading, storage, plant erection, etc to the principal agent for approval prior to proceeding with such loading, storing or erecting and shall comply with and pay for the principal agent's requirements in connection with the provision of temporary support work, etc. Any damage caused to the works by overloading shall be made good by the contractor at his sole expense F:..... V:..... T:.....	Item		
	Carried Forward		R	
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	Brought Forward		R
85	<p>Propping of floors below</p> <p>The contractor is advised that propping of floors below may be required if he wishes to use any areas of completed suspended reinforced concrete slabs for vehicle access, storage of materials and goods and location of plant, scaffolding, etc. The location of these areas and any necessary propping shall be approved by the principal agent and the cost thereof shall be borne by the contractor</p> <p>F:..... V:..... T:.....</p>	Item	
86	<p>Testing of flat roof waterproofing for watertightness</p> <p>Flat roof waterproof areas shall be prepared with small sand dykes around them of a size and enclosing an area approved by the principal agent, flooded with water and kept "ponded" for at least forty (40) hours as a test to ensure the watertightness of the waterproofing and before any further construction work is carried out above the waterproofing</p> <p>F:..... V:..... T:.....</p>	Item	
87	<p>Advertising rights</p> <p>The employer may elect to contract with advertising agencies for the erection of advertising hoardings, banners, wraps or the like for the duration of the contract. The contractor shall not prevent such an arrangement and will assist in the facilitation of same. Position and type of advertising structure to be agreed with the principal agent so as not to hinder the contractor in meeting the obligations under this agreement</p> <p>F:..... V:..... T:.....</p>	Item	
	Carried Forward		R
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	Brought Forward		R
88	<p>Confidentiality</p> <p>The contractor undertakes to maintain in confidence any and all information regarding this project and shall obtain appropriate similar undertakings from all subcontractors and suppliers. Such information shall not be used in any way except in connection with the execution of the works</p> <p>No information regarding this project shall be published or disclosed without the prior written consent of the employer</p> <p>F:..... V:..... T:.....</p>	Item	
89	<p>Media releases</p> <p>All rights of publication of articles in the media, together with any advertising relating thereto or in any way connected with this project, shall vest with the employer</p> <p>The contractor together with his subcontractors shall not, without the prior written consent of the employer, cause any statement or advertisement connected with this project to be printed, screened or aired by the media</p> <p>F:..... V:..... T:.....</p>	Item	
90	<p>Security check of personnel</p> <p>The employer may require the contractor to have his personnel and workmen, or a certain number of them to undergo security clearance.</p> <p>In the event of the employer 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.</p>	Item	
	Carried Forward		R
	<p>Section No. 1 Bill No. 1 Preliminaries and General</p>		

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Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 1</u>			
	<u>ALTERATIONS</u>			
	<u>PREAMBLES</u>			
	The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
	<u>Existing structures</u>			
	In taking down and removing existing work, the utmost care shall be taken to prevent any structural or other damage to the remaining portions on the building and the Contractor shall provide all shoring, needling, strutting, etc. to ensure the stability of all structures during the alteration work, Any damage to the structure and/or building as well as the rectification of same will be for the contractor's account			
	<u>Services</u>			
	Special care shall be exercised during the progress of the work to ensure that electrical installation, water supply pipes, telephone and other services which may be encountered are not interfered with and notice shall be given to the Representative/Agent if any disconnection or alterations become necessary.			
	<u>Dust and noise</u>			
	The Contractor is to take all necessary precautions to the satisfaction of the Representative/Agent to prevent any nuisance from the dust and /or noise whilst carrying out the work.			
	Carried Forward		R	
	Section No. 2 Bill No. 1 Alterations			

Brought Forward		R
<p><u>Disposal of debris</u></p> <p>The Contractor shall be responsible for the removal from site of all materials, debris and rubbish resulting from the work which removal is deemed to be included in the rates unless otherwise stated.</p> <p>Rates for taking out and removing doors and frames shall include for removing door stops, cabin hooks, etc and making good floor and wall finishes to match existing</p> <p>Making good of finishes shall include making good of the brick and concrete surfaces onto which the new finishes are applied, where necessary</p> <p><u>Temporary support to openings through existing walls</u></p> <p>Making openings, altering openings in existing walls and removing lintels above existing openings shall be done with the utmost care to prevent any structural damage. All necessary supports, propping, shoring, needling, strutting, turning pieces, etc. to walls openings is deemed to be included in the contractor's rates.</p> <p><u>Electrical and Mechanical</u></p> <p>Where items include for taking down electrical and mechanical fittings the disconnection and making safe electrically is deemed to be included.</p> <p><u>GENERAL NOTES TO TENDERERS</u></p> <p>General notes, described in Bill No.1, shall equally apply to this Bill.</p> <p><u>REMOVAL OF EXISTING WORK</u></p> <p><u>Breaking up and removing reinforced concrete including cutting off and removing reinforcement</u></p>		
1	Reinforced concrete surface bed	m2 500
Carried Forward		R
<p>Section No. 2 Bill No. 1 Alterations</p>		

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Brought Forward			R
<u>Taking out and removing doors, windows, etc including thresholds, sills, etc and building up openings in brick walls including making good cement plaster on both sides (making good paintwork elsewhere)</u>			
2	Timber single door and bolts not exceeding 2,5m2	No	3
3	Timber single door and door frame not exceeding 2,5m2	No	5
4	Timber double door and bolts only, exceeding 2.5m2 and not exceeding 5m2	No	4
5	Glazed timber window not exceeding 2,5m2 including making good to openings to receive new window	No	28
<u>Taking down and removing roofs, floors, panelling, ceilings, partitions, etc</u>			
6	Tongued and grooved timber suspended floors including skirtings, joists, bearers, etc	m2	219
7	Drywall partitions 2600mm high, including doors, glazed borrowed lights, etc	m	60
<u>Taking out/off and removing sundry metalwork</u>			
8	Steel security gate bolted to brickwork and making good plastered brickwork	No	3
<u>MAKING GOOD OF FINISHES ETC</u>			
<u>Making good external facebrick</u>			
9	Cleaning existing facebrick and making good mortar joints where required	m2	1,413
<u>Making good screed to receive new self levelling screed</u>			
10	Floors in patches	m2	261
<u>Cleaning and/or making good floors</u>			
11	Concrete walk ways in patches	m2	197
Carried Forward			R
Section No. 2 Bill No. 1 Alterations			

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	Brought Forward			R
12	Paved walk ways in patches	m2	207	
	<u>Making good internal wall finishes</u>			
13	Removal of paint to walls	m2	1,166	
14	Repairing cracks on internal plastered walls including cleaning and preparation to receive new finish	m2	1,166	
	<u>BUILDING UP OPENINGS</u>			
	<u>Brickwork in NFP bricks in class II mortar in building up openings including bonding and/or toothing to blend to existing walls</u>			
15	One brick walls	m2	17	
	<u>Brickwork reinforcement</u>			
16	150mm Wide reinforcement built in horizontally.	m	322	
	<u>Face bricks (Colour: To match existing) with PC sum amount of R 6 500.00 per thousand bricks delivered to site (excluding VAT) manufactured in accordance with SANS 227-2007, bedded and jointed in Class II mortar and pointed with square recessed 6mm joints in both directions</u>			
17	Extra over brickwork for face brickwork	m2	17	
	<u>SUNDRIES</u>			
	<u>Sundry mechanical works</u>			
18	Removal of existing air conditioners	No	1	
	<u>Sundry metalwork</u>			
19	Removal of existing steel safe, size approximately 665 x 640 x 1740mm high with a weight of approximately 1008 kg	No	1	
20	Extra over for moving safe to designated place pointed by client	Hrs	3.00	
	Carried Forward			R
	Section No. 2			
	Bill No. 1			
	Alterations			

GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00

Brought Forward		R
<u>BUDGETARY ALLOWANCES</u>		
21	Allow the sum of R120,000.00 for making good to existing works	Item 120,000.00
22	Allow the sum of R150,000.00 for making the removal and termination of all services including plumbing, electrical and mechanical services.	Item 150,000.00
Carried Forward to Summary of Section No.		R
Section No. 2		
Bill No. 1		
Alterations		

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 2</u>			
<u>EARTHWORKS (PROVISIONAL)</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>NOTES</u>			
<u>Carting away of excavated material</u>			
Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site			
<u>Filling</u>			
Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any multiple handling of material			
Excavations measured in successive depths of 2m.			
<u>EXCAVATIONS</u>			
<u>Excavation in earth not exceeding 2m deep</u>			
1	Trenches	m3	67
Carried Forward			R
Section No. 2 Bill No. 2 Earthworks			

GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00

Brought Forward			R
<u>Back excavation of vertical sides of excavation in earth for working space including backfilling compacted to 95% Mod AASHTO density</u>			
2	Back excavations to sides exceeding 0.5 m and not exceeding 1m deep for placing and removing formwork to walls 500mm from excavations	m2	225
<u>CARTING AWAY OF EXCAVATED MATERIAL</u>			
3	Extra over all excavation for carting away surplus material from excavation and / or stockpile on site to a dumping site to be located by the Contractor	m3	67
<u>RISK OF COLLAPSE OF EXCAVATIONS</u>			
<u>Risk of collapse to side of excavation in earth not exceeding 1,5m deep</u>			
4	Trenches and holes	m2	222
<u>KEEPING EXCAVATIONS FREE FROM WATER</u>			
5	Keeping excavations free of all water other than subterranean water	Item	
<u>FILLING, ETC.</u>			
<u>Filling supplied by the Contractor under floors, trenches, etc.</u>			
6	Sub-base filling (G7) under floors, steps, pavings, etc	m3	183
<u>TESTS</u>			
<u>Prescribed tests to determine degree of compaction or other properties of ground or filling</u>			
7	Modified AASHTO Density test for all compactions	No	12
Carried Forward			R
Section No. 2 Bill No. 2 Earthworks			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

[illegible]

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 3</u>			
<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>Cost of tests</u>			
The costs of making, storing and testing of concrete test cubes as required under clause 7, "Tests" of SANS 1200 G, shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the principal agent. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the principal agent. (Test cubes are measured separately)			
Concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Regional Representative. Only successful tests will be paid for (Provisional)			
Carried Forward		R	
Section No. 2 Bill No. 3 Concrete, Formwork and Reinforcement			

Brought Forward	R
<p><u>Formwork</u></p> <p>Descriptions of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.</p> <p>Formwork to soffits of solid slabs, etc. shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described. Formwork to soffits of slabs, beams, etc. shall be deemed to be propped up exceeding 1,5m and not exceeding 3,5m high unless otherwise described.</p> <p>Formwork to sides of bases, pile caps, ground beams, stripfootings, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks".</p> <p>Structural Concrete</p> <p>Tenderers are referred to the Structural Engineer's - Standard Specifications which should be read before pricing this trade in particular, but also the other trades. The use of extenders, fly-ash, etc. are clearly described on this drawing.</p> <p><u>GENERAL NOTES TO TENDERERS</u></p> <p>General notes, described in Bill No.1, shall equally apply to this Bill.</p>	
Carried Forward	R
<p>Section No. 2 Bill No. 3 Concrete, Formwork and Reinforcement</p>	

GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00

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GAUTENG DEPARTMENT OF PUBLIC WORKS
 RENOVATIONS OF GARRISON FINANCE OFFICE FOR
 DEPARTMENT OF DEFENSE
 TENDER BILL OF QUANTITIES- REV00

Brought Forward			R
<u>SUNDRIES TO CONCRETE</u>			
<u>Finishing top surfaces of concrete smooth with a wood float</u>			
9	Surface beds, slabs, etc to falls	m2	406
<u>MOVEMENTS JOINTS ETC,</u>			
<u>Isolation joints</u>			
10	10mm soft board or similar approved between concrete and brick wall	m	284
<u>REINFORCEMENT (PROVISIONAL)</u>			
<u>High and mild tensile steel reinforcement to structural concrete work</u>			
11	All diameter bars	t	12
<u>Fabric reinforcement:</u>			
12	Type 193 fabric reinforcement in concrete surface beds, slabs, etc.	m2	394
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 3			
Concrete, Formwork and Reinforcement			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 4</u>			
<u>MASONRY</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No.1, shall equally apply to this Bill.			
<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>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		R	
Section No. 2 Bill No. 4 Masonry			

GAUTENG DEPARTMENT OF PUBLIC WORKS
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 TENDER BILL OF QUANTITIES- REV00

		Brought Forward			R
		<u>BRICKWORK IN FOUNDATION</u>			
		<u>Brickwork of NFP bricks in class II mortar</u>			
1	One brick wall	m2	58		
2	Half brick wall	m2	10		
		<u>BRICKWORK IN SUPERSTRUCTURE</u>			
		<u>Brickwork of NFP bricks in class II mortar</u>			
3	One brick walls	m2	202		
4	Half brick walls	m2	12		
5	Half brickwork in beamfilling	m2	131		
		<u>FACE BRICKWORK</u>			
	<u>Face bricks to match existing with PC sum amount of R 5 500.00 per thousand bricks delivered to site (excluding VAT) manufactured in accordance with SANS 227-2007, bedded and jointed in Class II mortar and pointed with square recessed 6mm joints in both directions - as per architect's specification</u>				
6	Extra over brickwork for face brickwork in superstructure	m2	8		
7	Extra over brickwork for face brickwork in beamfilling	m2	151		
8	Extra over brickwork for face brickwork in brick-on-edge header course sills, bedded in mortar and set slightly sloped	m	30		
		<u>BRICKWORK SUNDRIES</u>			
		<u>Brickwork reinforcement</u>			
9	75mm Wide reinforcement built in horizontally	m	177		
10	150mm Wide reinforcement built in horizontally.	m	255		
		Carried Forward			R
	Section No. 2				
	Bill No. 4				
	Masonry				

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward			R
<u>Precast concrete prestressed fabricated lintels</u>			
11	100 x 70mm Lintels in lengths not exceeding 3m	m	60
<u>Roof ties</u>			
12	30 x 1.2mm galvanised steel strapping, built into wall for 5 courses and minimum 800mm to be fixed to trusses	No	120
Carried Forward to Summary of Section No. Section No. 2 Bill No. 4 Masonry			R

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 5</u>			
<u>WATERPROOFING</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No.1, shall equally apply to this Bill.			
<u>DAMP PROOFING OF WALLS AND FLOORS</u>			
<u>One layer of 375 micron "Consol Plastic Brikgrip DPC" embossed damp proof course</u>			
1	Under walls	m2	31
2	Under cills, etc.	m2	7
<u>One layer of 250 micron "USB Green" or similar approved damp proof membrane on 50mm sand</u>			
3	Under surface beds.	m2	340
<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>			
<u>4mm "Derbigum SP" waterproofing</u>			
4	On roof concrete slab	m2	94
Carried Forward			R
Section No. 2 Bill No. 5 Waterproofing			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward			R
	<u>"Tal Superflex 1" or other approved waterproofing system with "Tal" floor primer, one coat "Superflex" membrane and one heavy topcoat of "Superflex 1" applied according to manufacturer's specifications</u>		
5	On basement walls	m2	19
<u>PROTECTIVE ROOFING PAINT</u>			
<u>Two coats bituminous aluminium paint</u>			
6	Primer to waterproofing	m2	94
<u>JOINTS SEALANTS, ETC.</u>			
<u>Approved 10x10 polysulphide joint sealant</u>			
7	10mm Isolation Joints between surface bed concrete and brick wall	m	284
Carried Forward to Summary of Section No.			R
Section No. 2 Bill No. 5 Waterproofing			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 6</u>			
	<u>ROOF COVERINGS</u>			
	<u>PREAMBLES</u>			
	NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.			
	<u>GENERAL NOTES TO TENDERERS</u>			
	General notes, described in Bill No.1, shall equally apply to this Bill.			
	<u>ROOF SHEETING</u>			
	<u>0.6mm prepainted galvanised corrugated iron roof sheeting to comply with SANB 1845. Colour and profile to match existing</u>			
1	Roof covering with pitches not exceeding 25 degrees, measured flat on plan	m2	252	
2	Roof covering with pitches at 27 degrees, measured flat on plan	m2	320	
3	Roof covering at 30 degrees, measured flat on plan	m2	142	
4	Curved corrugated roof covering, measured flat on plan	m2	39	
5	Zinc coated steel ridge capping 550mm girth	m	51	
6	Hip capping 450mm girth	m	42	
7	Narrow and broad flute closers to match roof sheeting	m	128	
	Carried Forward			
	Section No. 2 Bill No. 6 Roof Covering		R	

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward					R
<u>FLASHINGS</u>					
<u>Approved</u>					
<u>0.58mm thick galvanised flashing factory finished - fixed as per manufacturer's specification and requirements</u>					
8	375mm girth Headwall flashing, 2 times bent and notched on site to suit roof profile	m	93		
<u>ROOF AND WALL INSULATION</u>					
<u>Similar Approved</u>					
<u>Sisalation "Bubble Foil" aluminium foil binded insulation</u>					
9	135mm thick Insulation laid over purlins (at approximately 750mm centres), fixed concurrent with sheeting with and including galvanised steel accessories	m2	553		
Carried Forward to Summary of Section No.					R
Section No. 2					
Bill No. 6					
Roof Covering					

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 7</u>			
<u>CARPENTRY AND JOINERY</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No.1, shall equally apply to this Bill.			
<u>NOTES</u>			
<u>Joinery</u>			
Descriptions of frames shall be deemed to include frames, transoms, mullions, rails, etc.			
Descriptions of hardwood joinery shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete.			
<u>Fixing</u>			
Items described as nailed shall be deemed to be fixed with hardened steel nails or shot pins to brickwork or concrete			
Carried Forward		R	
Section No. 2 Bill No. 7 Carpentry and Joinery			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward	R
<p><u>Decorative laminate finish</u></p> <p>Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish</p> <p><u>Timber</u></p> <p>All softwood to be South African Pine</p> <p><u>Descriptions</u></p> <p>Where the fixing of members is not stated it shall mean the nailing of one timber member to another.</p> <p>The term "planted on" shall mean the nailing of one timber member to another</p> <p>The term "screwed on" shall mean the countersunk screwing of one timber member to another.</p> <p>The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screw sunk and pelleted.</p> <p>The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete.</p> <p>The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screw sunk and pelleted.</p> <p>Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing.</p> <p>Descriptions of items given in linear metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc.</p> <p>Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc. shall be deemed to include for angles, ends, etc.</p>	
Carried Forward	R
<p>Section No. 2 Bill No. 7 Carpentry and Joinery</p>	

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

Brought Forward				R
<u>ROOFS, ETC</u>				
<u>Plate nailed timber roof truss construction</u>				
The following is applicable in respect of roof trusses:				
All timber to be sawn softwood in accordance with V4 or M4 as defined in SABS 563 or SABS 1245.				
Metal connector plates shall have a minimum yield strength of 228 MPa and a minimum ultimate tensile strength of 330 Mpa with hot-dip galvanised finish.				
All joints to be close fitted butt joints.				
Trusses shall be designed by a registered supplier of prefabricated trusses who shall issue an Engineers Certificate upon completion of the installation.				
The dimensions in the descriptions of the trusses are nominal and actual measurements are to be obtained on site before design or fabrication commences.				
Tenderers must study the roof plan and sections as attached to the back of these bills of quantities and must obtain prices from a qualified and registered roof truss supplier as no claims in this regard will be entertained.				
<u>Roof trusses</u>				
1	Design, supply, take delivery, temporary store, hoist in position and erect plate nailed timber roof trusses, purlins, gang boarding, temporary and permanent bracing all in accordance with architectural drawings and specifications, etc (27 deg, double pitched roof - measured on plan)	m2	160	
2	Design, supply, take delivery, temporary store, hoist in position and erect plate nailed timber roof trusses, purlins, gang boarding, temporary and permanent bracing all in accordance with architectural drawings and specifications, etc (30 deg, double pitched roof - measured on plan)	m2	142	
Carried Forward				R
Section No. 2 Bill No. 7 Carpentry and Joinery				

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	Brought Forward			R
3	Design, supply, take delivery, temporary store, hoist in position and erect plate nailed timber roof trusses, purlins, gang boarding, temporary and permanent bracing all in accordance with architectural drawings and specifications, etc (15 deg, mono pitched roof - measured on plan)	m2	104	
4	Design, supply, take delivery, temporary store, hoist in position and erect plate nailed timber roof trusses, purlins, gang boarding, temporary and permanent bracing all in accordance with architectural drawings and specifications, etc (5 deg, mono pitched roof - measured on plan)	m2	115	
5	Design, supply, take delivery, temporary store, hoist in position and erect plate nailed timber roof trusses, purlins, gang boarding, temporary and permanent bracing all in accordance with architectural drawings and specifications, etc (7.5 deg, mono pitched roof - measured on plan)	m2	33	
	<u>Sawn softwood</u>			
6	38 x 114mm Wall plates	m	341	
	<u>Sundries</u>			
7	Two coats creosote on sawn timbers	m2	341	
	<u>Fascia and badge boards</u>			
8	19 x 255mm fibre cement fascia boards, fixed to supports and roof timbers with one brass screw, including standard aluminium half round cover strips at all joints, as per manufacturer specification or similar approved	m	120	
9	15 x 80mm Fascias and barge boards including galvanised steel H-profile jointing strips	m	35	
	Carried Forward			R
	Section No. 2 Bill No. 7 Carpentry and Joinery			

GAUTENG DEPARTMENT OF PUBLIC WORKS
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	Brought Forward			R
<u>DOORS ETC</u>				
<u>40mm thick Semi-solid core flush panel doors with 2 concealed hardwood edges all round hung to steel frames all in accordance to architectural drawings and door schedules - Refer to Door Schedule</u>				
10	813 x 2032mm single door - D1,D2,D3,D5	No	10	
11	813 x 2032mm single door with a 300 x 300mm safety glass viewing panel - D5	No	2	
12	1678 x 2032mm high double door - D08	No	1	
<u>40mm Thick semi solid flush panel door with 2 concealed hardwood edges all round ,150mm undercut,hung to steel frames all in accordance to architectural drawings and door schedules - Refer to Door Schedule.</u>				
13	813 x 1880mm high single door - D06	No	2	
<u>40mm Thick hardwood framed, ledged and braced door with hardboard flush back panel to inside, hung to steel frame all in accordance to architectural drawings and door schedules - Refer to Door Schedule.</u>				
14	1678 x 2032mm high double door - D09	No	7	
<u>44mm Thick hardwood framed, ledged and braced door with hardboard flush back panel to inside, hung to steel frame all in accordance to architectural drawings and door schedules - Refer to Door Schedule.</u>				
15	878 x 2032mm high double door - D10	No	4	
<u>WINDOWS</u>				
<u>Cottage timber window frames</u>				
16	Window 533 x 949mm high (W1, W2)	No	4	
17	Window 1022 x 949mm high (W3)	No	1	
Carried Forward				R
Section No. 2 Bill No. 7 Carpentry and Joinery				

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	Brought Forward			R
18	Window 1110 x 1540mm high (W4)	No	9	
19	Window 690 x 1190mm high (W5)	No	1	
20	Window 533 x 1540mm high (W6)	No	4	
21	Window 1022 x 1540mm high (W7)	No	8	
22	Window 1022 x 654mm high (W8)	No	2	
23	Window 1511 x 949mm high (W9)	No	2	
	<u>FRAMED FRAMES ETC</u>			
	<u>Hardwood door frame with lugs for half brick wall to SANS 1099 in accordance to architectural drawings and door schedules - Refer to Door Schedule,</u>			
24	813 x 2032mm Frames-D2,D6	No	3	
	<u>Hardwood door frame with lugs for one brick wall to SANS 1099 in accordance to architectural drawings and door schedules - Refer to Door Schedule,</u>			
25	813 x 2032mm Frames-D3,D10	No	8	
	<u>Timber door sundries</u>			
26	813mm timber weatherbar with drip	No	4	
	<u>WORKTOPS, ETC</u>			
	<u>600mm Saligna wood works tops</u>			
27	600 x 32mm laminated saligna worktop with 6mm bevelled edges screwed to support brackets welded together with gusset plate to shape and fixed securely to the wall with masonry anchors from underneath .Finish wood with one coat 10% diluted and 2 coats undiluted acid- resistant polyurethane varnish - As per architect's specification	m	10	
	Carried Forward to Summary of Section No.			R
	Section No. 2			
	Bill No. 7			
	Carpentry and Joinery			

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Item No	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 8</u></p> <p><u>IRONMONGERY</u></p> <p><u>PREAMBLES</u></p> <p>NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.</p> <p><u>GENERAL NOTES TO TENDERERS</u></p> <p>General notes, described in Bill No. 1, shall equally apply to this Bill.</p> <p><u>Proprietary items</u></p> <p>Where applicable the manufacturers' names or product catalogue titles are given in sub-headings preceding the items</p> <p>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</p> <p>On request returnable samples are to be provided to the principal agent for consideration</p>			
<p>Carried Forward</p>			<p>R</p>
<p>Section No. 2 Bill No. 8 Ironmongery</p>			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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Brought Forward				R
<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				
AN Anodised natural				
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>Rates</u>				
The tenderer is to price for supply, taking delivery of, storing and fixing of the ironmongery listed below.				
<u>HINGES, BOLTS, ETC</u>				
<u>"Tessa" or similar approved</u>				
1	Three S/steel 100mm long roller bearing security hinges fastened with 6x45mm S/steel countersunk screws	No	12	
<u>Door viewers</u>				
<u>Astro-optical or similar approved</u>				
2	12mm, wide angle 160 deg viewer	No	8	
<u>'Mortice' or similar approved</u>				
3	Flush bolts	No	16	
4	Door closer	No	4	
Carried Forward				R
Section No. 2 Bill No. 8 Ironmongery				

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Brought Forward			R
<u>19mm x 500mm long vertical 'D' shaped pull handle at 1m height</u>			
5	Pull handle	No 4	
<u>1.6mm Steel kick plate</u>			
6	200mm high steel kick plate	No 8	
<u>WC indicator bolts</u>			
7	Male/female indicator thumb turn lock	No 2	
<u>LOCKS</u>			
<u>'Mortice' or similar approved</u>			
8	3 lever lockset	No 8	
9	2 Lever lock set with aluminium lever	No 12	
<u>"Tesa" or similar approved</u>			
10	"Tesa" 2030/30B double cylinder lock with 2030 F/60 emergency bar fitted to inside	No 8	
<u>HANDLES</u>			
<u>Approved</u>			
11	Aluminium satin-chrome handles	No 14	
<u>SUNDRIES</u>			
<u>Approved</u>			
12	"CZ8730SC" Door stop or similarly approved to wall or floors	No 21	
13	150 x 150mm Aluminium door sign	No 6	
14	152 x 152 x 3mm Aluminium engraved male/female plate applied to relevant room	No 4	
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 8			
Ironmongery			

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Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 9</u>			
	<u>FLOOR COVERINGS, WALL LININGS, ETC</u>			
	<u>PREAMBLES</u>			
	NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.			
	<u>GENERAL NOTES TO TENDERERS</u>			
	General notes, described in Bill No.1, shall equally apply to this Bill.			
	<u>FLOOR COVERINGS</u>			
	<u>Carpet tiles</u>			
	<u>500 x 500 Nexus berberpoint 920 carpet tile fixed with adhesive in a tessellated pattern as per manufactures specification</u>			
1	On floors	m2	286	
	<u>Vinyl tiles</u>			
	<u>300 x 300 x 5mm thick Belgotax dic system luxury vinyl tiles fixed to top of screed floor</u>			
2	On floors	m2	49	
	Carried Forward to Summary of Section No.			
	Section No. 2			
	Bill No. 9			
	Floor Coverings, Plastic Lining etc.			
			R	

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Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 10</u>			
<u>CEILINGS, PARTITIONS AND ACCESS FLOORING</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No.1, shall equally apply to this Bill.			
<u>NOTES</u>			
<u>Fixing</u>			
Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 500mm centres, and where described as "bolted", the bolts have been given elsewhere.			
Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins, or to be shot-pinned, to brickwork or concrete			
<u>Ceilings & Bulkheads</u>			
Unless otherwise described ceilings shall be deemed to be horizontal			
Carried Forward		R	
Section No. 2 Bill No. 10 Ceilings, Partitions and Access Flooring			

GAUTENG DEPARTMENT OF PUBLIC WORKS
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Brought Forward				R
<u>Steel components</u>				
All steel components for ceilings, partitions, etc are to be galvanised in accordance with SANS 121				
<u>NAILED UP CEILINGS</u>				
<u>80x600mm Wide Isoboard "Isopine" rigid extruded polystyrene foam fixed with screws to 8x38mm branderling at 700mm max centers with branderling around perimeter of ceiling. Concealed clips to be inserted at each junction with branderling to link sheets. Board to be finished with two coats matt PVA paint.</u>				
1	Fibre cement ceilings not exceeding 1m below timber truses	m2	407	
<u>PARTITIONS ETC</u>				
<u>"Rhino-Drywall" partition systems</u>				
"Rhino-Drywall" partitioning shall comprise steel studding formed of 63.5mm top and bottom tracks with vertical studs at maximum 600mm centres, friction fitted or pop-riveted to the top and bottom tracks with similar additional vertical studs as necessary at abutments, ends, etc and covered as described with wallboard screwed to studding with "Drywall" screws at maximum 220mm centres. Boards are to be butt jointed and finished with "Rhino" tape and "Readymix D" jointing compound all in accordance with the manufacturer's instructions. Intersections and abutments are measured separately and descriptions shall be deemed to include any additional studs, corner beads, jointing compound, tape, etc				
Note: Wall paper and/or paint and varnish finishes are measured elsewhere				
2	115mm Partitioning 2.7m high with bottom and top tracks plugged	m	21	
3	90mm Partitioning 2.7m high with bottom and top tracks plugged	m	33	
Carried Forward				R
Section No. 2 Bill No. 10 Ceilings, Partitions and Access Flooring				

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Brought Forward			R
4	Extra over for abutments with stud tape and joints	No	18
5	Extra over for intersections with stud tape and joints	No	10
6	Extra over for fair ends with stud tape and joints	No	4
7	Extra over for 878 x 2100mm aluminium door (D1, D5, D7)	No	12
8	Extra over for 1678 x 2100mm aluminium double door (D8)	No	1
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 10			
Ceilings, Partitions and Access Flooring			

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Item No	Quantity	Rate	Amount
<p><u>SECTION NO. 2</u></p> <p><u>BILL NO. 11</u></p> <p><u>METALWORK</u></p> <p><u>PREAMBLES</u></p> <p>NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p>Supplementary preamble items described in Bill No. 1, shall equally apply to this bill.</p> <p><u>GENERAL NOTES TO TENDERERS</u></p> <p>General notes, described in Bill No.1, shall equally apply to this Bill.</p> <p><u>ALUMINIUM</u></p> <p>The contractor is to make due allowance in his prices for complying with the following requirements.</p> <p><u>SPECIFICATIONS</u></p> <p>User Note:</p> <p><u>Glazing</u></p> <p>All Safety glazing material (individual panes) are to conform to all standards as stipulated in SANS 10400 Part N and SANS 10137 and any additional Engineer Specifications or relevant SANS glazing regulations not stipulated in this document. All tenderers are referred to the drawings for the glazing specification.</p>			
<p>Carried Forward</p>			<p>R</p>
<p>Section No. 2 Bill No. 11 Metalwork</p>			

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Brought Forward		R
<p><u>Ironmongery</u></p> <p>All rates for windows, shopfronts and doors etc. must include for the supply, taking delivery or/and installation of the ironmongery to be specified.</p> <p><u>Actuators</u></p> <p>All rates for shopfronts with actuators to include for the supply and installation of actuators as specified</p> <p><u>Scaffolding</u></p> <p>All scaffolding should be provided by the contractor and no claims/ qualifications will be accepted.</p> <p><u>Protection</u></p> <p>With this tender, the glazing sub-contractor must supply a statement concerning protection that will be provided to finishes and components until Practical Completion. This to include specific references to the method of removal of such protection. All tenderers to include cost of protection in tender price.</p> <p><u>Installation</u></p> <p>All measurements to be checked on site prior to ordering and manufacturing.</p> <p>Aluminium sections and shop drawings to be accepted by Architect prior to manufacturing.</p> <p>Allow for water and weather proof polysulphide sealant to approved specifications all around frame junctions to plaster and other materials.</p> <p><u>Profiles</u></p> <p>Tenderers to provide typical details of proposed aluminium section to be used in the design.</p>		
Carried Forward		R
<p>Section No. 2 Bill No. 11 Metalwork</p>		

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Brought Forward	R
<p><u>Structural Silicone</u></p> <p>Tenderers to allow a 10 year guarantee on all powdercoating.</p> <p><u>Preliminary and Shop Drawings:</u></p> <p>The contractor shall submit preliminary design drawings showing basic system sections for the Architect's approval.</p> <p>After approval and prior to fabrication detailed shop drawings shall be prepared and submitted to the Architect for approval.</p> <p><u>Fixing:</u></p> <p>The contractor is to take special note of all fixing details of all aluminium elements and must allow in his price for properly securing the aluminium sections to the structure with and including all necessary steel brackets, rails, timber grounds and sub-frames, including all necessary holing and bolting, etc. This fixing is to be adequately spaced and securely fixed to ensure total stiffness of the door frames, windows, etc. as no sagging causing improper functioning of the windows and doors will be accepted.</p> <p><u>Deflection of structure:</u></p> <p>The contractor is advised to make adequate provision for the design deflection of the structure.</p> <p><u>Tolerances:</u></p> <p>Sizes are approximate only and measurements on site must be taken before fabrication. Due allowance must be made for tolerances in accordance with the Architect's details.</p> <p><u>Protection:</u></p> <p>The contractor will be required to protect his work during the course of construction, which protection shall be adequate for the purpose and to the full approval of the Architect.</p>	
Carried Forward	R
<p>Section No. 2 Bill No. 11 Metalwork</p>	

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Brought Forward			R
Such protection shall only be removed after a written instruction from the Architect.			
<u>Cleaning:</u>			
All work must be cleaned down upon completion. Glazing as installed will not be accepted as clean glass and the contractor must allow for polishing glass as and when instructed by the Architect.			
Note: All windows and doors should be read in conjunction with window and door schedules			
<u>PRESSED STEEL DOOR FRAMES</u>			
<u>50 x 25 x 2.5mm Rectangular steel tubing with 10x10mm solid steel square tubing to form rebate in 900mm wide frame</u>			
1	Frame for door 813 x 2033mm high	No	2
<u>STEEL BURGLAR PROOFING</u>			
<u>25 x 25 x 10mm steel hollow section square frame fixed into reveal with expansion bolts with 12 x 12mm steel solid round bars to follow the profile of the window as per the architect's detail</u>			
2	Burglar proof bars to windows	m2	39
<u>NATURAL ANODISED ALUMINIUM LOUVRE UNITS</u>			
<u>Natural anodised aluminium standard section door frame with three heavy duty aluminium hinges to SANS 999 plugged to brickwork or concrete</u>			
3	Frame for door 813 x 2032mm high-D1,D5	No	7
4	Frame for door 1678 x 2032mm high-D8	No	1
5	Frame for door 813 x 2033mm high - D7	No	6
Carried Forward			R
Section No. 2 Bill No. 11 Metalwork			

	Brought Forward			R
	<u>STEEL SECURITY GATES</u>			
	<u>Welded MS gate consisting of 50 x 50 x 2.5mm rectangular tubing section frame with 45 degrees mitre at corners, bolted to reveals with 10mm (10M) rawlbolts and welded with 50 x 50 x 5mm mild steel to walls, with 50 x 50 x 2.5mm mild steel rectangular tube gate leaf with 45 degree mitre at corners and two 50 x 50 x 2.5mm horizontal sections, with 12 x 12mm mild steel vertical style solid square bars at 100mm c/c, including 3x pair of 20mm diameter bullet-hinges per gate, with "Solid blesbok" 460/313 four lever lockset with rebate set, including welding, bolting, holes, bolts etc., all complete as per the architect's specifications</u>			
6	Security gate for 878 x 2023mm	No	2	
	<u>WELDED MESH SCREEN</u>			
	<u>Mentex 70 VEM 325A mesh welded in to steel frame comprising of 25 x 50 x 2.5mm rectangular mild steel frame fixed with M10 bolts and welded to 50 x 50 x 3mm mild steel angle to architect's specification</u>			
7	In ceiling voids	m2	407	
Carried Forward to Summary of Section No.				R
Section No. 2				
Bill No. 11				
Metalwork				

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Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 12</u>			
<u>PLASTERING</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No. 1, shall equally apply to this Bill.			
<u>SCREEDS</u>			
<u>Granolithic screed on concrete, worked down to a true and even surface with a wood trowel</u>			
1	40mm Thick on floors and landings	m2	9
<u>TAL Screedmaster self leveling screed, or similar approved, screed to floors as per manufacturers recommendations and architects approval</u>			
2	Average 3 to 4mm thick on floors and landing	m2	49
<u>INTERNAL PLASTER</u>			
<u>One coat plaster with wooden trowel finish</u>			
3	On walls	m2	137
4	On narrow widths	m2	17
Carried Forward			R
Section No. 2 Bill No. 12 Plastering			

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Brought Forward			R
<u>EXTERNAL PLASTER</u>			
<u>One coat plaster with steel trowel finish</u>			
5	On walls	m2	18
6	On narrow widths	m2	17
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 12			
Plastering			

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Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 13</u>			
<u>TILING</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>Pricing</u>			
Prices are to included for the following: Supply, cutting, handling, labour, adhesive etc.			
<u>Fixing</u>			
Tiling described as "fixed with adhesive on power floated concrete" shall be deemed to include for approved tiling key-coat.			
Ceramic, porcelain, marble and granite tiles are to be fixed, grouted and pointed with suitable adhesives and grouts, as recommended by the Architect. Costs are hereby deemed to include the cost of this requirement.			
Payment for work that is deemed measurable, in respect of the conditions of contract, and which comprises cutting, leaving, or forming, rectangular holes and notches through tiling is hereby deemed to apply only to holes and notches that do not exceed 600mm girth. Those exceeding 600mm in girth are hereby deemed to be "square cutting", which is hereby deemed to be part of the work description for that type of tiling and is not measurable as a separate item of work.			
Carried Forward		R	
Section No. 2 Bill No. 13 Tiling			

GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00

Brought Forward			R
<u>Wastage</u>			
Tile wastage is deemed to be included in the rates.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No. 1, shall equally apply to this Bill.			
<u>Note</u>			
All scaffolding should be provided by the contractor and no claims/qualifications will be accepted.			
<u>FLOOR TILING</u>			
<u>350 x 350mm Ceramic tile (P.C allowance of R 350.00/m2 excludes V.A.T. but includes delivery to site), includes waste, laying, supply and fixing with an approved adhesive and jointing in waterproof cementitious grout as per manufacturer's specifications</u>			
1	On floors	m2	44
2	100mm high skirting	m	45
<u>WALL TILING</u>			
<u>150 x 150mm white glazed tiles (PC allowance of R 200.00/m2 excludes V.A.T. but includes delivery to site), includes waste, laying, supply and fixing with an approved adhesive and jointing white grout all as per manufacturers specifications</u>			
3	Splash backs	m2	15
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 13			
Tiling			

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 14</u>			
<u>PLUMBING AND DRAINAGE</u> <u>(PROVISIONAL)</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No. 1, shall equally apply to this Bill.			
<u>Wire gratings</u>			
Descriptions of gutter outlets, etc shall be deemed to include wire balloon gratings			
<u>Sealing of edges</u>			
Outer edges of sinks, basins, baths, urinals, etc are to be sealed against adjacent surfaces with approved silicone			
<u>uPVC pipes and fittings</u>			
Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings			
Soil, waste and vent pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings			
Carried Forward		R	
Section No. 2 Bill No. 14 Plumbing and Drainage			

Brought Forward	R
<p><u>uPVC pressure pipes and fittings</u></p> <p>Pipes of 50mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings</p> <p>Pipes of 63mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints</p> <p><u>High density polyethylene (HDPE) pipes and fittings</u></p> <p>Pipes shall be type IV and of the class specified with "Plasson" or "Alprene" compression fittings</p> <p><u>"Polycop" polypropylene pipes</u></p> <p>Polypropylene pipes 54mm diameter and smaller shall be seamless copper coloured Class 16 pipes jointed with "Fast-fuse" heat welded thermoplastic or where so described "Polylock" compression fittings</p> <p>Pipes shall be firmly fixed to walls, etc with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions</p> <p><u>Copper pipes</u></p> <p>Pipes shall be hard drawn and half-hard "Maksal" pipes of the class described. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), Class 2 (half-hard) and Class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-siphon pipes, capillary solder fittings and compression fittings shall be "Cobra Watertech" type. Capillary solder fittings shall comply with ISO 2016</p> <p>Copper pipes are to be installed in accordance with the latest revision of the Code of Practice for Copper Plumbing soldering techniques. Flux, solder, etc to be strictly in accordance with the manufacturer's requirements with special attention to copper flux composition</p>	
Carried Forward	R
<p>Section No. 2 Bill No. 14 Plumbing and Drainage</p>	

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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Brought Forward		R
<p><u>Reducing fittings</u></p> <p>Where fittings have reducing ends or branches they are described as "reducing" and only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained</p> <p><u>Fixing of pipes</u></p> <p>Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls, etc, casting in, building in or suspending not exceeding 1m below suspension level</p> <p><u>Paper wrapping to pipes</u></p> <p>Pipes chased into brickwork must be wrapped with two layers of stout brown paper tied with wire. Rates are to include for wrapping around joints and fittings</p> <p><u>Disinfection of water pipework</u></p> <p>Water pipework is to be disinfected at completion in accordance with SABS 1200L (provision for disinfection elsewhere)</p> <p><u>"Densyl" petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd.</u></p> <p>Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with 50% overlaps</p> <p>Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including mastic, tape, "Layflat" sheeting, securing of same, etc</p> <p>Prices for wrapping of pipes shall include for all work as described to couplings in the length</p>		
Carried Forward		R
<p>Section No. 2 Bill No. 14 Plumbing and Drainage</p>		

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Brought Forward					R
<u>General</u>					
Descriptions of cast iron roof outlets shall be deemed to include joints to pipes and casting into concrete (adaptors for joints to PVC pipes, etc are given separately)					
Descriptions of overflow pipes where measured in number, shall be deemed to include joints to cisterns and splay cut ends					
Descriptions of service pipes and flexible connecting pipes shall be deemed to include connections to taps, cisterns, etc and to steel pipes (adaptors for connections to copper pipes, etc are given separately)					
Descriptions of WC pans, slop hoppers, etc shall be deemed to include for joints to soil pipes (pan connectors are separately measured)					
<u>RAINWATER GOODS</u>					
<u>100 x 100mm chromadek seamless gutter fixed to trusses, to match roof color, complete with down pipes according to SANS 10400 spec. Fit according to manufacturer's detail specs.</u>					
1	Extruded chromadek seamless gutters with 20mm overlapping joints sealed with and including bitumen impregnated foam plastic joint sealing strip and riveted at 20mm centres	m	120		
2	110mm Diameter galvanised sheet iron down pipe fixed to brick wall including brackets	m	60		
3	Extra over eaves gutter for offset	No	20		
4	Extra over eaves gutter for outlet	No	20		
5	Extra over for shoe	No	20		
6	Extra over eaves gutter for stopped end	No	20		
Carried Forward					R
Section No. 2 Bill No. 14 Plumbing and Drainage					

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		Brought Forward		R
<u>SANITARY FITTINGS</u>				
<u>WATER CLOSET</u>				
<u>Approved</u>				
<u>Vaal Sanitaryware semi-close coupled water closet comprising double flap heavy duty thermoplastic seat rim pan and matching 9 litre cistern complete with lid, fitments and flush pipe elbow (PC allowance of R2 800.00/no excludes V.A.T. but includes delivery to site), includes waste, supply and fixing</u>				
7	WC, installed complete	No	2	
<u>Vaal Sanitaryware Paraplegic semi-close coupled water closet, comprising double flap heavy duty thermoplastic seat rim pan and matching 9 litre cistern, including dog leg twice bent 45 degrees and straight cistern back grab rail, including purpose made chromium plated side-flush lever. (PC allowance of R9 300.00/no excludes V.A.T. but includes delivery to site), includes waste, supply and fixing</u>				
8	Paraplegic WC, installed complete	No	1	
<u>Approved</u>				
<u>Vaal Sanitaryware vitreous china wall hung urinal with top inlet including 38mm chrome plated domical grating, including Cobra "Junior Flushmaster" exposed chrome plated flush valve, including offset urinal flush pipe, chrome plated bottle trap and parallel nipple (PC allowance of R4 950.00/no excludes V.A.T. but includes delivery to site), includes supply and fixing</u>				
9	Urinal, installed complete	No	1	
		Carried Forward		R
Section No. 2 Bill No. 14 Plumbing and Drainage				

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Brought Forward			R
<u>SINKS, etc.</u>			
<u>Vitreous China</u>			
10	Approved wall hung basin size 500 x 410 x 170mm with 1 or 2 tapholes	No	2
11	Approved wall hung paraplegic basin size 500 x 410 x 170mm	No	1
<u>Approved economy stainless steel double sink including integrated supports and legs, including waste, supply and fixing to walls, counters etc</u>			
12	1030 x 440 x 388mm stainless steel sink, complete.	No	1
<u>WASTE UNIONS ETC</u>			
13	32mm anti vandal pull up basin waste union or similar approved	No	3
<u>TOILET ROLL HOLDER</u>			
<u>Approved</u>			
14	130 x 560 x 130mm mild steel vandal proof Toilet paper roll holder (Colour: TBC), plugged and screwed to walls	No	3
<u>TAPS, VALVES, ETC</u>			
<u>Approved</u>			
15	Basin Mixer (PC allowance of R850.00/no excludes V.A.T. but includes delivery to site), includes waste, supply and fixing	No	3
16	Sink Mixer (PC allowance of R850.00/no excludes V.A.T. but includes delivery to site), includes waste, supply and fixing	No	1
17	15mm brass watertight hose Bib tap	No	3
Carried Forward			R
Section No. 2 Bill No. 14 Plumbing and Drainage			

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Brought Forward			R
<u>GRAB RAILS, etc.</u>			
<u>Approved</u>			
18	750 x 90mm, 304 high quality stainless steel, 32mm diameter SR1 flush valve grab rail including stainless steel screws and plastic wall plugs	No	2
<u>TESTING</u>			
19	Testing drainage pipe system		Item
<u>PAPER TOWEL DISPENSER</u>			
<u>Approved</u>			
20	360 x 380 x 240mm high lockable auto-cut (reflex) plastic Paper towel dispenser (Colour: TBC), plugged and screwed to wall	No	3
Carried Forward to Summary of Section No.			R
Section No. 2			
Bill No. 14			
Plumbing and Drainage			

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Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 15</u>			
<u>GLAZING</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Bill No. 1, shall equally apply to this Bill.			
<u>Note:</u>			
All glazing to comply with SABS 1263 Part 3:1998. Light and ventilation to comply with Part O if NBR 0400			
<u>GLASS TO STEEL WITH PUTTY</u>			
<u>4mm clear floated glass fixed glazing putty</u>			
1	Panes exceeding 0.5m2 and not exceeding 2.0m2	m2	39
<u>6mm obscure floated glass fixed glazing putty</u>			
2	Panes not exceeding 0.1m2	m2	1
Carried Forward			R
Section No. 2 Bill No. 15 Glazing			

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Brought Forward			R
<u>MIRROR, ETC</u> <u>5mm Silvered float glass copper backed mirrors with polished bevelled edges fixed with double sided adhesive tape to and including painted supawood sub-frame approximately 350 x 900 mm fixed to and including galvanised angle section cleats/brackets</u>			
3	750 x 450mm high	No	3
Carried Forward to Summary of Section No.			R
Section No. 2 Bill No. 15 Glazing			

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Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 16</u>			
	<u>PAINTWORK</u>			
	<u>PREAMBLES</u>			
	NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2017 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	Supplementary preamble items described in Bill No. 1, shall equally apply to this Bill.			
	<u>GENERAL NOTES TO TENDERERS</u>			
	General notes, described in Bill No. 1, shall equally apply to this Bill.			
	<u>PAINTWORK TO PREVIOUS PAINTED</u>			
	<u>One coat primer and two coats paint including preparatory - Colour: TBC</u>			
1	On plastered walls	m2	583	
2	In narrow widths not exceeding 300mm wide	m2	17	
	<u>PAINTWORK ETC TO NEW WORK</u>			
	<u>INTERNAL PLASTER</u>			
	<u>Prepare and apply one coat professional plaster primer and two coats super acrylic PVA paint suitable for washing with a mild detergent - Colour: TBC</u>			
3	On brick walls	m2	137	
	Carried Forward		R	
	Section No. 2			
	Bill No. 16			
	Paintwork			

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	Brought Forward			R	
	<u>EXTERNAL PLASTER</u>				
	<u>Prepare and apply one coat professional plaster primer and two coats super acrylic PVA paint suitable for washing with a mild detergent - Colour: TBC</u>				
4	On brick walls	m2	18		
5	In narrow widths not exceeding 300mm wide	m2	17		
	<u>ON PLASTERBOARD SURFACES</u>				
	<u>Prepare and apply one coat plaster primer and two coats acrylic paint - Colour: TBC</u>				
6	Flush plastered ceilings	m2	407		
7	On partitions	m2	293		
	<u>SMOOTH CONCRETE</u>				
	<u>One coat alkali resistant primer and two coats superior quality acrylic emulsion paint for interior and exterior use</u>				
8	Soffits of slab	m2	7		
	<u>METAL SURFACES</u>				
	<u>Spot priming defects in pre primed surfaces with zinc phosphate metal primer, one coat universal undercoat and two polyurethane velvet enamel paint</u>				
9	On door frames	m2	2		
	<u>WOOD SURFACES</u>				
	<u>Prepare and apply one coat pink wood primer, one universal undercoat and two coats approved PVA paint</u>				
10	On doors	m2	66		
11	On door frames	m2	7		
	Carried Forward			R	
	Section No. 2				
	Bill No. 16				
	Paintwork				

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**GAUTENG DEPARTMENT OF PUBLIC WORKS
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Bill No	SECTION SUMMARY - Builders work	Page No	Amount
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2	Earthworks	34	
3	Concrete, Formwork and Reinforcement	38	
4	Masonry	41	
5	Waterproofing	43	
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8	Ironmongery	54	
9	Floor Coverings, Plastic Lining etc.	55	
10	Ceilings, Partitions and Access Flooring	58	
11	Metalwork	63	
12	Plastering	65	
13	Tiling	67	
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16	Paintwork	79	
Carried to Final Summary			R
Section No. 2			

Item No	Quantity	Rate	Amount
<u>SECTION NO. 3</u>			
<u>BILL NO. 1</u>			
<u>EARTHWORKS</u>			
<u>PREAMBLES</u>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<p>Tenderers are advised that this Bill or any items within this Bill or any combination of the other Bills or items may be omitted from the contract should their tender be successful. Rates should therefore allow for the possibility that the contract might only consist of this Bill or any combination of some of these Bills or items. No claim whatsoever will be entertained for change of scope resulting from adjudicating the Bills individually</p>			
<u>Excavation for working space in rock</u>			
<p>Notwithstanding clause 11 page 8 of the Standard System of Measuring Building Work, excavation for working space in rock will be measured in cubic metres to the extent executed and given as "extra over" bulk excavation or trench and hole excavation as the case may be</p>			
<u>Carting away of excavated material</u>			
<p>Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site</p>			
<u>Filling</u>			
<p>Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any necessary multiple handling of material</p>			
Carried Forward		R	
<p>Section No. 3 Bill No. 1 Generator Plinth</p>			

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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Brought Forward	R
<p><u>Testing</u></p> <p>Prices for filling are to include for all necessary density tests in accordance with SABS 1200D</p> <p><u>GENERAL NOTES TO TENDERERS</u></p> <p>Tenderers are to inspect the drawings issued with these Bills of Quantities and to satisfy themselves with the nature and the requirements of the Contract works. Failure to do so will be the complete responsibility of the Tenderer and no claims whatsoever will be entertained in this regard.</p> <p>Tenderers are to read the descriptions, which are intended as a means of identifying various facets of the work, in conjunction with the drawings. Tenderers shall allow for all costs in connection with the various items taking full cognisance of both the drawings and the Bills of Quantities.</p> <p>Tenderers shall notify the Quantity Surveyor in writing of any discrepancies encountered upon which clarification will be given by the Quantity Surveyor in writing to the Tenderer. Failure to do so will be the complete responsibility of the Tenderer and no claims whatsoever will be entertained in this regard</p> <p>Tenderers are to note that setting out of the works will be the complete responsibility of the Tenderer and they should therefore acquaint themselves with the site boundaries, site co-ordinates, datum levels etc. Failure to do so will be the complete responsibility of the Tenderer and no claims whatsoever will be entertained in this regard.</p> <p>Tenderers are to note that all items with ZERO quantities are Rate Only items and should be priced as such.</p> <p>Tenderers are to note that there might be specified suppliers to be used for certain trades as per the annexure to this tender document. Tenderers should familiarise themselves with the suppliers on the list and ensure to allow for accordingly. Failure to do so will be the complete responsibility of the Tenderer and no claims whatsoever will be entertained in this regard.</p>	
Carried Forward	R
<p>Section No. 3 Bill No. 1 Generator Plinth</p>	

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Brought Forward			R	
Tenderers are to fully acquaint themselves with the construction period and shall allow for any night shift if required. Failure to do so will be the complete responsibility of the Tenderer and no claims whatsoever will be entertained in this regard.				
Excavations measured in successive depths of 2m.				
<u>EXCAVATIONS ETC</u>				
<u>Excavation in earth not exceeding 2m deep</u>				
1	Holes	m3	1	
<u>Extra over all excavations for carting away</u>				
2	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	1	
<u>FILLING ETC</u>				
<u>Compaction of surfaces</u>				
3	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% Mod AASHTO density	m2	7	
<u>RISK OF COLLAPSE OF EXCAVATIONS</u>				
<u>Risk of collapse to side of excavation in earth not exceeding 1,5m deep</u>				
4	Sides of trench and hole excavations not exceeding 1,5m deep	m2	2	
<u>SOIL POISONING, ETC</u>				
<u>Soil insecticide</u>				
5	To bottoms and sides of trenches, holes etc	m2	9	
Carried Forward			R	
Section No. 3 Bill No. 1 Generator Plinth				

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Brought Forward			R
<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACE</u>			
<u>30MPa/19mm Concrete</u>			
6	Concrete plinth	m3	3
<u>TEST BLOCKS</u>			
<u>Notes:</u>			
Concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Regional Representative. Only successful tests will be paid for (Provisional)			
7	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional)	No	3
<u>SUNDRIES TO CONCRETE</u>			
<u>Surface treatment</u>			
8	Power float top surface of concrete surface bed to a true and even level finish	m2	7
<u>ROUGH FORMWORK (DEGREE OF ACCURACY II)</u>			
<u>Rough formwork to sides</u>			
9	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	11
<u>REINFORCEMENT (PROVISIONAL)</u>			
<u>High and mild tensile steel reinforcement to structural concrete work</u>			
10	All diameter bars	t	0.3
Carried to Final Summary			R
Section No. 3			
Bill No. 1			
Generator Plinth			

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Item No	Quantity	Rate	Amount
<u>SECTION NO. 4</u>			
<u>BILL NO. 1</u>			
<u>PROVISIONAL SUMS</u>			
<u>PREAMBLES</u>			
NOTE : The tenderer is referred to the relevant clauses in the Model Preambles for Trades (2008 Edition) as issued by the Association of South African Quantity Surveyors before pricing this bill.			
<u>SUPPLEMENTARY PREAMBLES</u>			
Supplementary preamble items described in Section 1, Bill No.1, shall equally apply to this Bill.			
<u>GENERAL NOTES TO TENDERERS</u>			
General notes, described in Section 1, Bill No.1, shall equally apply to this Bill.			
Provisional Sums are to be expended/utilized only upon:			
·i) the submission of a minimum of three market related quotations or tendering for selected subcontracts. Quotations for service providers may be solicited by any of the following entities: the main contractor , the Employers' agents and Employer .			
·ii) A detailed review of the submitted quotations or selected subcontract tenders by the main contractor , the Employers' agents and Employer .			
iii) the contractor is to only commence works upon the receipt of a written instruction from the Principal Agent .			
Carried Forward		R	
Section No. 4 Bill No. 1 Provisional Sums			

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Brought Forward	R
<p><u>Cash discount</u></p> <p>The following provisional sums and prime cost amounts are NET and represent the NET COST of the work described. The contractor shall not be entitled to any discount, percentage or allowance whatsoever on the value of any provisional sum or prime cost amount other than the priced value for profit and attendance as provided for. The provisional sums and prime cost amounts may be deducted in whole or in part from the contract and are subject to adjustment upon completion</p> <p><u>Profit</u></p> <p>Where stated, the contractor may allow for profit if required</p> <p><u>General attendance on nominated/selected subcontractors</u></p> <p>The item "Attendance" which follows each provisional sum for nominated/selected subcontractors' work, shall be deemed to cover all the contractor's costs incurred in providing free of charge to the nominated/selected subcontractors, the following:</p> <p><u>Builder's work</u></p> <p>Builder's work in connection with specialist services is given elsewhere in these bills of quantities</p> <p><u>ATTENDANCE</u></p> <p>The amounts allowed for "attendance" must provide for all services rendered, attendance of making good of all trades after "specialists", also for the use of any scaffolding and equipment.</p> <p><u>Note</u></p> <p>The items described hereunder cover work which is not fully defined at tender date and which is intended to be executed by the contractor and/or his subcontractors. The amounts shown shall be used as directed by the Principal Agent, approved by the Employer. The amounts shall be deducted in all or in part if not required.</p>	
Carried Forward	R
<p>Section No. 4</p> <p>Bill No. 1</p> <p>Provisional Sums</p>	

**GAUTENG DEPARTMENT OF PUBLIC WORKS
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TENDER BILL OF QUANTITIES- REV00**

Brought Forward		R	
<u>Refurbishment of existing fireplace structures</u>			
1	Allow an amount of R200,000.00 (Two Hundred Thousand) for the refurbishment of existing fireplace structures	Item	200,000.00
2	Profit	%	
3	Attendance	%	
<u>Installation of cashier windows</u>			
4	Allow an amount of R180,000.00 (One Hundred and Eighty Thousand) for installation of cashier windows	Item	180,000.00
5	Attendance	%	
6	Profit	%	
<u>Supply and installation of money safe</u>			
7	Allow an amount of R88,000.00 (Eighty Eight Thousand) for installation of approved cashmatic drop slot fire proof safe	Item	88,000.00
8	Profit	%	
9	Attendance	%	
Carried to Final Summary			
Section No. 4		R	
Bill No. 1			
Provisional Sums			

PART B
ELECTRICAL WORK

PUBLIC WORKS**JSB GARRISON FINANCE OFFICE REFURBISHMENT****ELECTRICAL INSTALLATION****BILL No. 1 - STANDBY POWER, ELECTRICAL CONNECTION AND DISMANTLING**

ITEM	DESCRIPTION	UNIT	QTY	TENDER VALUE	
				RATE	AMOUNT
1,1	<u>Re-Commissioning of 315kVA Transformer</u>				
1.1.1	Install Terminations	sum	1		
1.1.3	Install joints	sum	1		
1.1.4	Testing and Re-Comissioning	No	1		
1,2	<u>Commissioning</u>				
1.2.1	Tenderers to allow for all the commissioning requirements, including testing, attendance, as-built drawings, manuals, for the cable work, DBs, power points and lighting points as set out in the specification and SANS 01042, prior to the installation being taken over as complete	sum	1		
1,3	<u>Lightning Protection</u>				
1.3.1	Total cost for the provision of lightning protection points as indicated on the layout drawings and specific drawings including testing and issuance of certificates thereof. Contractors shall allow for the installation and tesing to be performed by approved speciallists	sum	1		
1,4	<u>Electical Connection</u>				
1.4.1	Supply, deliver, install, connect, test and commission a 50KVA Standby Diesel Generator including the ATS (Automatic Transfer Switch) and Plinth	No	1		
TOTAL BILL 1 CARRIED FORWARD TO TENDER SUMMARY					

PUBLIC WORKS

**JSB GARRISON FINANCE OFFICE REFURBISHMENT
ELECTRICAL INSTALLATION
BILL No.2 - DISTRIBUTION BOARDS**

		UNIT	QTY	TENDER VALUE	
ITEM	DESCRIPTION			RATE	AMOUNT
2,1	The supply installation testing and handing over of all distribution boards and control panels for the supplies to general lighting and power circuits within the building, including for all equipment as specified, but excluding for items measured elsewhere				
2.1.1	DB-1	No	1		
2.1.2	DB-2	No	1		
2,2	Lable all circuits and install signage to the panels	sum	1		
TOTAL FOR BILL 2 CARRIED FORWARD TO TENDER SUMMARY					

PUBLIC WORKS

JSB GARRISON FINANCE OFFICE REFURBISHMENT

ELECTRICAL INSTALLATION

BILL No.3 - LOW VOLTAGE DISTRIBUTION

ITEM	DESCRIPTION	UNIT	QTY	TENDER VALUE	
				RATE	AMOUNT
3,1	Supply, deliver, install and terminate Cu PVC SWA PVC 600/1000V Cable, in trenches, sleeves or on cable trays				
3.1.1	35mm ² x 4 core				
3.1.1.2	Supply and delivery	Meter	150		
3.1.1.3	Installation	Meter	150		
3.1.1.4	Termination, c/w glands, shrouds, lugs and connection	No	6		
3.1.2	16mm ² x 4 core				
3.1.2.1	Supply and delivery	Meter	80		
3.1.2.3	Installation	Meter	80		
3.1.2.4	Termination, c/w glands, shrouds, lugs and connection	No	2		
3.1.3	10mm ² x 4 core				
3.1.3.1	Supply and delivery	Meter	40		
3.1.3.3	Installation	Meter	40		
3.1.3.4	Termination, c/w glands, shrouds, lugs and connection	No	2		
3.1.5	Supply, install and terminate Earth Continuity Conductor fixed to cables with cable ties spaced at 750mm: (BCEW)				
3.1.5.1	16mm ²	Meter	150		
3.1.5.2	10mm ²	Meter	80		
3.1.5.3	6mm ²	Meter	40		
3,2	Sleeves				
	High density (or equal and approved) polyethylene (HDPE) sleeve with double wall construction, corrugated outer wall and smooth inner wall finish inclusive of couplers, bends, etc				
	50mm diameter				
3,2,1	Supply and delivery	Meter	60		
3,2,2	Installation	Meter	60		
3,3	Excavations				
	All excavations, back filling and compaction must be done manually using local labour				
	Excavate for cable and sleeve trench including temporary support of sides, keeping excavations dry, backfilling and compacting to the Engineer's specification				
3,3,1	Pickable Soil	m ³	33		
3,3,2	For Soft Rock	m ³	24		
3,3,3	For Hard Rock	m ³	15		
3,4	Cable Tape and Markers				
	PVC warning marking tape				
3,4,1	Supply and delivery	Meter	100		
3,4,2	Installation	Meter	100		
3,5	Cable Ladders and Trays				
	Heavy Duty Galvanised Cable Ladders and Trays complete with cantilever hangers or suspension rods complete with all joints, bends, tees, splicing etc as specified on the Drawings and the Quality Specifications.				
	150mm wide cable ladder				
3,5,1	Supply and delivery	Meter	120		
3,5,2	Installation	Meter	120		
	200mm wide cable ladder				
3,5,3	Supply and delivery	Meter	100		
3,5,4	Installation	Meter	100		
TOTAL BILL 3 CARRIED FORWARD TO TENDER SUMMARY					

PUBLIC WORKS

**JSB GARRISON FINANCE OFFICE REFURBISHMENT
ELECTRICAL INSTALLATION
BILL No.4 - INTERIOR LIGHTING INSTALLATION**

ITEM	DESCRIPTION	UNIT	QTY	TENDER VALUE	
				RATE	AMOUNT
4,1	WIREWAYS				
4.1.2	Supply, delivery and installation of Steel conduits, surface mounted in ceiling voids and fixed to walls or cast-in or built into walls, including all fixing materials, bends, terminations, draw boxes. etc.				
4.1.2.1	20mm diameter				
	Supply and delivery	Meter	850		
	Installation	Meter	850		
4.1.3	Supply, delivery and installation of Conduit outlets boxes c/w locknuts and bushes built into brick or cast into concrete or surface mounted				
4.1.3.1	100 x 50 x 50 mm				
	Supply and delivery	No	65		
	Installation	No	65		
4.1.3.2	65mm round box				
	Supply and delivery	No	74		
	Installation	No	74		
4,2	ACCESSORIES				
4.2.1	Supply and Install accessories to boxes				
4.2.2	5A, 3-pin socket outlets to trunking	No	45		
4.2.3	16Amp one lever one way light switch	No	10		
4,3	WIRING AND TERMINALS				
4.3.1	2,5mm² PVC insulated conductor				
	Supply and delivery	Meter	1350		
	Installation	Meter	1350		
4,3,3	2,5mm² Insulated earth conductors				
	Supply and delivery	Meter	1000		
	Installation	Meter	1000		
4,3,4	2,5mm² bare copper earth wire				
	Supply and delivery	Meter	1350		
	Installation	Meter	1350		
SUB-TOTAL FOR THIS PAGE CARRIED FORWARD					

BILL No.4 - INTERIOR LIGHTING INSTALLATION					
		UNIT	QTY	TENDER VALUE	
ITEM	DESCRIPTION			RATE	AMOUNT
SUB-TOTAL FROM PREVIOUS PAGE					
4,4	LIGHT FITTINGS				
4.4.1	Supply, deliver, install, connect, test and commissioning the following light fittings				
4.4.1.1	Type F1 LED - decorative fluorescent fitting - 1200mm x 1 x 36w tubes with ac mat difuser	No	2		
4.4.1.2	Type F2 LED Decorative Flourescent fitting - 1200mm 2x 36W Tubes with ac mat difuser	No	34		
4.4.1.3	Type D ceiling mounting downlight luminaire with LED 30W	No	12		
4.4.1.4	Type B1 Bulkhead Luminaire with LED 2x9W PL 9 lamps with balast	No	11		
4.4.1.5	Type B2 Wall or ceiling mount luminaire with LED 2 x 18W PL 18 lamps with double balast.	No	15		
4.4.1.6	16 A photocell in an empty bulk head luminaire	No	3		
4.4.2	Supply, deliver, install, connect, test and commissioning of Occupancy Sensors				
4.4.2.1	Supply, deliver, install, connect, test and commissioning occupancy sensors	No	15		
TOTAL BILL 4 CARRIED FORWARD TO TENDER SUMMARY					

PUBLIC WORKS

JSB GARRISON FINANCE OFFICE REFURBISHMENT
ELECTRICAL INSTALLATION
BILL No.5 - SMALL POWER INSTALLATION

		UNIT	QTY	TENDER VALUE	
ITEM	DESCRIPTION			RATE	AMOUNT
5,1	WIREWAYS Supply, delivery and installation of PVC conduits, surface mounted in ceiling voids and fixed to walls or cast-in or built into walls, including all fixing materials, bends, terminations. draw boxes. etc. 25mm diameter				
5,1,1	Supply and delivery	Meter	400		
5,1,2	Installation	Meter	400		
	Supply, delivery and installation of galvanised steel conduits, surface mounted in ceiling voids and fixed to walls or cast-in or built into walls, including all fixing materials, bends, terminations. draw boxes. etc. 20mm diameter				
5,1,3	Supply and delivery	Meter	300		
5,1,4	Installation	Meter	300		
	Supply, delivery and installation of Conduit outlets boxes c/w locknuts and bushes built into brick or cast into concrete or surface mounted 100 x 100 x 50 mm				
5,1,5	Supply and delivery	No	48		
5,1,6	Installation	No	48		
5,2	ACCESSORIES Supply, delivery and installation of socket outlets				
	16 A, 3-pin standard white SSO				
5,2.1	Flush Mounted	No	12		
	16 A, 3-pin double white SSO				
5,2.2	Flush Mounted	No	5		
	16 A, 3-pin dedicated red SSO				
5,2.3	Power skirting mounted, 45 degree (including plug top)	No	20		
	Multigang socket outlet 2x16A, Data, Telephone				
5,2,4	Flush Mounted	No	4		
	Supply, delivery and installation of isolators				
5,2,5	16A triple pole - Indoor Flush Mount	No	10		
5,2,6	20A four pole - IP66 Outdoor surface mount	No	2		
5,2,7	40A triple pole - IP66 Outdoor surface mount	No	1		
5,2,8	20A two pole - Indoor Flush Mount	No	8		
	Supply, delivery and installation of on power skirting				
5,2,9	3 compartment power skirting aluminium type complete with covers, bends, etc..	m	300		
SUB-TOTAL FOR THIS PAGE CARRIED FORWARD					

BILL No.5 - SMALL POWER INSTALLATION					
		UNIT	QTY	TENDER VALUE	
ITEM	DESCRIPTION			RATE	AMOUNT
SUB-TOTAL FROM PREVIOUS PAGE					
5,3	WIRING AND TERMINALS				
	Supply, Deliver and installation of Cu Conductors:				
	2.5mm² PVC insulated conductor				
5,3,1	Supply and delivery	Meter	400		
5,3,2	Installation	Meter	400		
	4mm² PVC insulated conductor				
5,3,3	Supply and delivery	Meter	1000		
5,3,4	Installation	Meter	1000		
	2.5mm² bare copper earth wire				
5,3,5	Supply and delivery	Meter	400		
5,3,6	Installation	Meter	400		
	4mm² bare copper earth wire				
5,3,7	Supply and delivery	Meter	1000		
5,3,8	Installation	Meter	1000		

PUBLIC WORKS					
JSB GARRISON FINANCE OFFICE REFURBISHMENT					
ELECTRICAL INSTALLATION					
BILL No.6 - VOICE/DATA WIREWAYS					
		UNIT	QTY	TENDER VALUE	
ITEM	DESCRIPTION			RATE	AMOUNT
6,1	Supply, delivery and installation of PVC conduit, surface mounted in ceiling voids and fixed to walls or cast-in or built into walls, including all fixing materials, bends, terminations. draw boxes. etc.				
	20mm diameter				
6,1,1	Supply and delivery	Meter	525		
6,1,2	Installation	Meter	525		
	Supply, delivery and installation of Conduit outlets boxes				
	50mm Round box				
6,1,3	Supply and delivery	No	25		
6,1,4	Installation	No	25		
6,2	Supply and installation of power skirting mounted voice / data accessories				
6,2,1	Blank cover plate suitable for RJ 11 telephone outlet	No	29		
6,2,2	Blank cover plate suitable for RJ 45 data outlet	No	29		
TOTAL FOR BILL 6 CARRIED FORWARD TO TENDER SUMMARY					

**JSB GARRISON FINANCE OFFICE REFURBISHMENT
ELECTRICAL INSTALLATION
BILL No. 7 - SECURITY WIREWAYS**

TOTAL FOR BILL 7 CARRIED FORWARD TO TENDER SUMMARY

PUBLIC WORKS
JSB GARRISON FINANCE OFFICE REFURBISHMENT

SUMMARY: ELECTRICAL INSTALLATION

	DESCRIPTION	TENDER AMOUNT
1	BILL No. 1 - STANDBY POWER, ELECTRICAL CONNECTION AND DISMANTLING	
2	BILL No.2 - DISTRIBUTION BOARDS	
3	BILL No.3 - LOW VOLTAGE DISTRIBUTION	
4	BILL No.4 - INTERIOR LIGHTING INSTALLATION	
5	BILL No.5 - SMALL POWER INSTALLATION	
6	BILL No.6 - VOICE/DATA WIREWAYS	
7	BILL No.7 - SECURITY WIREWAYS	
8	Sub Total A	
9	VAT	
10	TOTAL INCLUSIVE OF VAT	

PART C
MECHANICAL WORK

	<u>MECHANICAL WORK</u>
	<u>PREAMBLES</u>
	Applicable to parts 1 to 7 of this section
	Tenderers are advised to study the "Standard Specifications for Air Conditioning and Ventilation Installations, Issue X1, 1998 as well as the "Standard Specification for Electrical Installation and Electrical Equipment pertaining to the Mechanical Services, Issue 1Xa, December 1999" both of the Department of Public Works
	Supplementary Preambles
1	<u>Introduction</u>
	(a) These standard Specifications cover general technical requirements for the equipment, materials, installations, testing, commissioning and maintenance of mechanical installations for the Department. These requirements shall be read in conjunction with the documents as specified below.
	(b) "Document" shall mean the complete set of contract documents, including the Department's Tender Conditions, Tender Qualifications, the Standard Specifications and the Detail Technical Specification including all drawings and variation orders issued in terms of the contract.
	(c) "Contractor" shall mean the person, partnership, company or firm appointed for the supply, installation, testing, commissioning and maintenance of the mechanical installations. The word "Contractor" shall also mean "Sub-contractor". Where applicable the builder shall be referred to as the "Main Contractor"
2	<u>Installation Work</u>
	(a) The complete installation shall comply with the requirements of this Specification. Should any discrepancies or contradictions exist between this specification and the Detail Technical Specification for the specific installation, then the latter shall take precedence. In the event of discrepancies between drawings, specifications and the Bill of Quantities the Department shall decide whether the work as executed shall be remeasured on site or whether remeasurement shall be effected from the working drawings only.
	(b) The Department's authorised representative will inspect the installation from time to time during the progress of work. Discrepancies will be pointed out to the Contractor and these shall be remedied at the Contractor's expense. Under no circumstances shall these inspections relieve the Contractor of his obligation in terms of the Documents.
	(c) Electrical supply to equipment such as air conditioning units, fans, etc. will be done by others. Only one supply point per unit, inclusive of a suitable isolator switch, will be provided. Connections must be done in accordance with the specifications and a CoC supplied.
3	<u>Regulations</u>
	(a) The installations shall be erected and tested in accordance with the Acts and Regulations as indicated in the Standard Specifications.

	(b) The Contractor shall issue all notices and pay all of the required fees in respect of the installation to the authorities, and shall exempt the Department from all loss, claims, costs or expenditure which may arise as a result of the Contractor's negligence in complying with the requirements of the regulations.
	(c) It shall be assumed that the Contractor is conversant with the above mentioned requirements. Should any requirement, by-law or regulation, which contradicts the requirements of this Document, apply or become applicable during erection of the installation, such requirement, by-law or regulation shall overrule this Document and the Contractor shall immediately inform the Department of such contradiction. Under no circumstance shall the Contractor carry out any variations to the installation in terms of such contradictions without obtaining the written permission to do so from the Department.
4	<u>Site Conditions</u>
	Tenders are advised to visit the site and acquaint themselves with all local conditions pertaining to the execution of the installation before the tender closing date. No claims from the Contractor which may arise from insufficient knowledge of the site access, type of site, labour conditions, establishment space, transport and loading/unloading facilities, power and water supply, etc. will be considered after submission of tenders. For services where prior permission is required before contractors can visit the site, a visit will be arranged for all interested parties.
5	<u>Material and Equipment</u>
	(a) All material and equipment shall conform in respect of quality, manufacture, testing and performance, with the requirements of the South African Bureau of Standards or where no such standard exists, with the relevant current Specification of the British Standards Institute.
	(b) All material and equipment shall be of high quality and suitable for the conditions on site. These conditions shall include weather conditions as well as conditions under which materials are installed, stored and used. Should the materials not be suitable for use under temporary site conditions then the Contractor shall at his own cost provide suitable protection until these unfavourable site conditions cease to exist.
	(c) The Contractor shall where requested to do so, submit samples of equipment and material to the Department for approval prior to installation. Samples may be retained in the Department's possession until the contract is completed after which they will be returned.
6	<u>Codes of Practice or Standard Specifications</u>
	Where reference is made to any Code of Practice or Standard Specifications in this document the latest edition or amendment shall be applicable, except where specified to the contrary.
	The rate for each item in the Bill of Quantities shall include for all materials, labour, profit, transport, etc., everything necessary for the execution and complete installation of the work in accordance with the description.
	Rates must not include for electrical power points and builder's work, which are to be supplied by others.
	Unless specifically otherwise described all materials and equipment shall be new and unused.

7	<u>General</u>
	1. The Conditions of Contract and the application of the Contract Price Adjustment Provisions shall be set out in Section No. 1 of the Bill of Quantities for this Contract.
	2. This Bill of Quantities forms part of, and must be read in conjunction with the Specification.
	3. No alterations, erasures or additions be made, it will not be recognised and the original wording of the Bill of Quantities will be adhered to.
	4. Tenderers shall complete the Bill of Quantities and detail the unit rate and total amount of each item. The total shall constitute the tender price of adjudication.
	5. Tenderers are advised to check their item extension and total additions, as arithmetical errors in the priced Bill of Quantities will not be considered as having an effect on the tender amount.
	6. The client will check the completed Bill of Quantities and reserves the right to adjust any individual rate and to rectify any discrepancy whilst the total tender price as quoted remains unaltered.
	7. The unit rate for each item in the Bill of Quantities shall include for all materials, labour, profit, transport, etc., everything necessary for the execution and complete installation of the work in accordance with the description.
	8. Unless specifically otherwise described all materials and equipment shall be new and unused.
	9. Rates for described by trade name or catalogue reference number must be based on the type and manufacture specified. Substitution of articles so specified will only be allowed in extreme circumstances and then only if the prior approval of the architect has been obtained.

Summary

Description	Amount
Part 1	
AIR CONDITIONING AND VENTILATION INSTALLATION	R -
Part 2	
FRESH AIR AND EXTRACTION INSTALLATION	R -
TOTAL	R -

	INSTALLATIONS	Unit	Qty	Rate	Amount
	PART 1				
	<u>AIR CONDITIONING AND VENTILATION INSTALLATION</u>				
	JBCC Work Group 170 to Apply				
	Inverter Split Air Conditioning System				
	Air Conditioning Units (Indoor and Outdoor Type) and Ductwork Complete with Air Terminals and Filters)				
	<u>Supply and Install</u>				
	3.6kW Cooling AC4C2 4-way ceiling cassette split inverter unit complete with condensing and control units, condensate pump, refrigerant pipework, electrical work, etc.	No.	4		R -
					R -
2	Ditto, but 5.2kW Cooling AC4C3 4-way ceiling split inverter unit.	No.	2		R -
					R -
	4.5kW Cooling ACH4 split inverter midwall hide-away unit complete with condensing and control units condensate pump, refrigerant pipework, electrical work, etc.	No.	1		R -
					R -
4	Ditto, but AC 8H 11.0kW cooling split inverter midwall hide-away unit.	No.	1		R -
					R -
	6.0kW Cooling ACM6 split inverter midwall unit complete with condensing and control units, condensate pump with 4m head pressure, refrigerant pipework, electrical work, etc.	No.	1		R -
					R -
	Electrical Connections Etc.				R -
					R -
	<u>Supply and Install</u>				R -
					R -
6	2.5mm x 3 Core + earth SWA electrical cable	m	250		R -
					R -
7	Electrical connection between isolator and condensing unit	No.	8		R -
					R -
8	Ditto, but between condensing unit and evaporator.	No.	8		R -
					R -
9	150mm diameter neck size swirl type SWD1 supply air diffuser.	No.	13		R -
					R -
	<u>Ducting</u>				R -
					R -
	<u>CPAP Work Group 171 to Apply</u>				R -
					R -
	<u>Externally Insulated Ducting</u>				R -
					R -
	<u>Supply and Install</u>				R -
					R -
10	150mm Diameter round duct	m	7		R -
					R -
11	150mm Diameter round bend	No.	1		R -
					R -
12	Duct, size 100 x 150mm	m	3		R -
					R -
13	Duct, size 200 x 150mm	m	2		R -
					R -
14	Duct, size 200 x 200mm	m	4		R -
					R -
15	Duct, size 400 x 200mm	m	6		R -
					R -
16	Duct, size 400 x 300mm	m	4		R -
					R -
17	Take-off size 100 x 150mm to 150mm diameter	No	2		R -
					R -
18	Ditto, but size 200 x 150mm, to 150mm diameter	No	5		R -
					R -
19	Ditto, but size 200 x 200mm, to 150mm diameter	No	3		R -
					R -
20	Ditto, but size 400 x 200mm, to 150mm diameter	No	3		R -
					R -
21	Ditto, but size 400 x 300mm, to 150mm diameter	No	3		R -

					R	-
22	Transducer from 200 x 150mm to 100 x 150mm	No	1		R	-
					R	-
23	Transducer from 400 x 200mm to 200 x 200mm	No	1		R	-
					R	-
24	Transducer from 400 x 300mm to 400 x 200mm	No	1		R	-
					R	-
25	Transducer from 1200 x 300mm to 200 x 150mm from hide-away	No	1		R	-
					R	-
26	Transducer from 1200 x 300mm to 400 x 300mm from hide-away	No	1		R	-
					R	-
27	150mm Diameter flexible insulated air conditioning duct	m	35		R	-
					R	-
	<u>PIPING</u>				R	-
					R	-
	<u>JBCC WORK GROUP 170 TO APPLY</u>				R	-
					R	-
	<u>PVC CONDENSATE PIPING</u>				R	-
					R	-
28	20mm Diameter pipe	m	60		R	-
					R	-
29	20mm Bend	No	14		R	-
					R	-
30	20mm Dropper	No	4		R	-
					R	-
31	50mm Diameter pipe	m	45		R	-
					R	-
32	50mm Bend	No	4		R	-
					R	-
33	50mm Dropper	No	3		R	-
					R	-
	<u>REFRIGERANT GAS PIPING</u>				R	-
					R	-
34	12.9mm Diameter pipe	m	69		R	-
					R	-
35	12.9mm Bend	No	18		R	-
					R	-
36	12.9mm Dropper	Mo	6		R	-
					R	-
37	15.9mm Diameter pipe	m	35		R	-
					R	-
38	15.9 Bend	No	6		R	-
					R	-
39	15.9mm Dropper	No	4		R	-
					R	-
	<u>REFRIGERANT LIQUID PIPING</u>				R	-
					R	-
40	6.35mm Diameter pipe	m	60		R	-
					R	-
41	6.35mm Bend	No	14		R	-
					R	-
42	6.35mm Dropper	No	6		R	-
					R	-
43	9.52mm Diameter pipe	m	44		R	-
					R	-
44	9.52mm Bend	No	10		R	-
					R	-
45	9.52mm Dropper	No	4		R	-
					R	-
	<u>TRUNKING AND CABLE BASKETS</u>				R	-
					R	-
46	P9000 Trunking	m	45		R	-
					R	-
47	P9000 Trunking bend	No	8		R	-
					R	-
48	300mm Cable basket	m	88		R	-
					R	-
49	300mm Cable basket bend	No	2		R	-
					R	-
50	Ditto, but T	No	1		R	-
					R	-
51	Ditto, but Cross	No	4		R	-
					R	-
	<u>SUNDRIES</u>				R	-
					R	-

52	Air conditioning controller	No	8		R	-
					R	-
	BUILDER'S WORKING CONNECTION WITH AIR CONDITIONING INSTALLATION				R	-
					R	-
53	Core drill 50mm diameter hole through existing concrete floor slab/surface bed not exceeding 100mm thick	No	1		R	-
					R	-
54	Leave or form 50mm diameter hole through one-brick wall for passage of pipe or sleeve	No	9		R	-
					R	-
55	Ditto, but size approximately 200mm wide x 100mm high	No	1		R	-
					R	-
56	Leave or form opening size approximately 320mm wide x 270mm high through one-brick wall	No	1		R	-
					R	-
57	Ditto, but size approximately 470mm wide x 270mm high	No	3		R	-
					R	-
58	290mm Wide formed timber lining size 320mm wide x 270mm high overall and 270mm deep to top, bottom and both reveals of opening through one-brick wall, formed of 22mm 5-ply blockboard with veneer suitable for painting on both sides and edges and with lining twice plugged to top bottom and both reveals of opening (painting elsewhere)	No	1		R	-
					R	-
59	Ditto, but size 470mm wide x 270mm high overall.	No	3		R	-
					R	-
60	0.6mm Galvanised sheet iron sleeve size 200mm wide x 100mm high and 230mm long including building into opening (elsewhere) through one-brick wall	No	1		R	-
					R	-
61	20mm Diameter PVC conduit approximately 2500mm long and including one round connector box, fixing in and including chase in plastered brick wall and making good	No	1		R	-
					R	-
	TESTING, COMMISSIONING, ETC				R	-
					R	-
62	Balancing, testing and commissioning of the Air Conditioning and Ventilation Installations in accordance with the Specifications	Item	1		R	-
					R	-
	AS INSTALLED DRAWINGS AND EQUIPMENT MANUALS				R	-
					R	-
63	Allow for the production of "As installed" drawings - the Contractor is to return and hand over to the Engineer a complete set of fully Marked-up "As built/installed" drawings.	Item	1		R	-
					R	-
64	Supply and hand over to the Engineer THREE properly bound sets of copies of "As installed" equipment manuals.	Item	1		R	-
					R	-
	OPERATOR TRAINING, GUARANTEE AND MAINTENANCE AGREEMENT				R	-
					R	-
65	Training of Operators and Maintenance staff as per Specifications	Item	1		R	-
					R	-
	GUARANTEE				R	-
					R	-
66	24-Month equipment and installation guarantee period	Item	1		R	-
					R	-
	MAINTENANCE AGREEMENT				R	-
					R	-
67	36-Month maintenance agreement	Item	1		R	-
					R	-
	TOTAL				R	-

	<u>PART 2</u>	Unit	Quantity	Rate	Amount
	<u>FRESH AIR AND EXTRACTION INSTALLATION</u>				
	<u>JBCC WORK GROUP 170 TO APPLY</u>				
	<u>FANS (INDOOR AND OUTDOOR UNITS) AND DUCTWORK COMPLETE WITH AIR TERMINALS AND FILTERS</u>				
	<u>SUPPLY AND INSTALL</u>				
1	Type FF1 Silent in-line 280 litre per second fresh air fan complete with electrical connection and filters	No	1		R -
					R -
2	Ditto, but type EF2 and 45 litre per second silent in-line fresh air fan	No	1		R -
					R -
3	Type EF1 ceiling mounted 100 litre per second extract fan complete with electrical connection	No	2		R -
					R -
4	Ditto, but type EF2 and 45 litre per second extract fan	No	1		R -
					R -
5	Type EF3 silent in-line 135 litre per second extract fan complete with electrical connection	No	1		R -
					R -
6	Type EF4 135 litre per second axial extract fan complete with electrical connection, two sound attenuators and DOL	No	1		R -
					R -
	<u>DIFFUSERS</u>				R -
					R -
7	Type DV1 150mm diameter neck size disk valve	No	4		R -
					R -
8	Type SD1 150mm diameter neck size supply air diffuser	No	1		R -
					R -
	<u>GRILLES</u>				R -
					R -
	<u>SUPPLY AND INSTALL</u>				R -
					R -
9	Type RG1 Return air grille size 600 x 600mm	No	2		R -
					R -
10	Type WL1 Weather louvre size 400 x 200mm	No	4		R -
					R -
	<u>BUTTERFLY DAMPERS</u>				R -
					R -
	<u>SUPPLY AND INSTALL</u>				R -
					R -
11	Type BD1 100mm diameter butterfly damper	No	6		R -
					R -
12	Type BD2 150mm diameter butterfly damper	No	1		R -
					R -
13	Type BD3 200mm diameter butterfly damper	No	1		R -
					R -
	<u>AIR DUCTING COMPLETE WITH ALL MATERIAL, ETC, TO COMPLETE THE INSTALLATION</u>				R -
					R -
	<u>JBCC WORK GROUP 121 TO APPLY</u>				R -
					R -
	<u>Supply and Install</u>				R -
					R -
14	100mm Diameter round ventilation duct	m	16		R -
					R -
15	Ditto, but 125mm diameter	m	12		R -
					R -
16	Ditto, but 150mm diameter	m	4		R -
					R -
17	Ventilation duct size 150 x 200mm	m	6		R -
					R -
18	Ditto, but size 200 x 100mm	m	5		R -
					R -
19	Ditto, but size 225 x 200mm	m	8		R -
					R -
20	Ditto, but size 300 x 200mm	m	5		R -
					R -
21	Ducting take-off from 100mm diameter to 100mm diameter	No	1		R -
					R -
22	Ditto, but from 150 x 200mm to 100mm diameter	No	4		R -
					R -
23	Ditto, but from 200 x 100mm to 100mm diameter	No	3		R -
					R -

24	Ditto, but from 225 x 200mm to 100mm diameter	No	1	R	-
				R	-
25	Ditto, but from 300 x 200mm to 100mm diameter	No	1	R	-
				R	-
26	Transducer from 125mm diameter to 100mm diameter	No	2	R	-
				R	-
27	Ditto, but from 225 x 200mm to 150 x 200mm	No	1	R	-
				R	-
28	Ditto, but from 300 x 200mm to 225 x 200mm	No	1	R	-
				R	-
29	100mm Diameter flexible ventilation ducting	m	8	R	-
				R	-
30	Ditto, but 150mm diameter	m	22	R	-
				R	-
	<u>TESTING, COMMISSIONING, ETC</u>			R	-
				R	-
31	Balancing, testing and commissioning of the Fresh Air and Extraction installations in accordance with the Specifications	Item	1	R	-
				R	-
	<u>AS INSTALLED DRAWINGS AND EQUIPMENT MANUALS</u>			R	-
				R	-
32	Allow for the production of "As installed" drawings - the Contractor is to return and hand over to the Engineer a complete set of fully Marked-up "As built/installed" drawings	Item	1	R	-
				R	-
33	Supply and hand over to the Engineer THREE properly bound sets of copies of "As installed" equipment manuals	Item	1	R	-
				R	-
	<u>GUARANTEE AND MAINTENANCE AGREEMENT</u>			R	-
				R	-
	<u>GUARANTEE</u>			R	-
				R	-
34	24-Month equipment and installation guarantee period	Item	1	R	-
				R	-
	<u>MAINTENANCE AGREEMENT</u>			R	-
				R	-
35	36-Month maintenance agreement	Item	1	R	-
				R	-
	TOTAL			R	-

PART D
ELECTRONICAL WORK

DoD JSB Garrison

Electronic Installation - Security Upgrades and CCTV System

Rev B

Description		Total
1	Section 1- Preliminary&General	R -
2	Section 2- Fire detection	R -
3	Section 3- CCTV	R -
4	Section 4- Access Control	R -
5	Section 5- Alarm Systems	R -
6	Section 6- PA System	R -
Total NETT Tender Value		R -
VAT 15%		R -
Total Tender Value (Incl VAT)		R -

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 1- Preliminary&General

R -

Item No.	Description	Unit	QTY	Rate	Amount
1.1	SECTION AB : PRELIMINARY AND GENERAL : ELECTRICAL INSTALLATION				
1.1.1	FIXED CHARGE ITEMS				
a	Contractual requirements	Sum	1		R -
	Facilities for the Engineer				
b	a) Cable and test equipment	Sum	1		R -
	Section 1- Preliminary&General				
c	a) Office and storage sheds including lockable store	Sum	1		R -
1.1.2	TIME RELATED ITEMS				
a	Contractual requirements	Sum	1		R -
	Facilities for the Engineer				
	(Operation and maintainance)				
b	a) Survey equipment	Sum	1		R -
	Facilities for the Contractor				
	(Operation and Maintenance)				
c	a) Office and storage sheds including lockable store	Sum	1		R -
d	Supervision for duration of the contract	Sum	1		R -
e	Company and head office overheads for the duration of contract	Sum	1		R -
f	Other time related obligations	Sum	1		R -
g	Provide adequate funds for health and safety to ensure compliance and provide proof of registration with a compensation fund and in good standing	Sum	1		R -
1.1.3	DAYWORKS				
a	Allow the provisional sum stated to be expended at the discretion of the Engineer as dayworks	PC	Sum		R -
b	Allow for all costs associated with testing of the works and providing the final Certificates of Completion.	Sum	1		R -
c	Allow for all costs associated with the provision of a full time safety official (officer or representative depending on number of staff on site)	Sum	1		R -
1.1.4	Documentation				
a	As-built drawings and manuals for electrical installation	Sum	1		R -
b	Certificates of compliance for complete installation	Sum	1		R -
1.1.5	Guarantee				
a	24 month equipment and installation guarantee period	Sum	1		R -
1.1.6	Maintenance Agreement				
a	36-month maintenance agreement	Sum	1		R -
1.1.7	Training of DoD JSB Garrison on all equipment installed	Sum	1		
1.1.8	Provide detail list of all licences required and renewal information	Sum	1		
	Total carried forward to summary				R -



DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 2- Fire detection

R -

Item No.	Description	Unit	QTY	Rate	Amount
2.1	Supply and install fire detection system (IP)				
2.1.1	4 Loop A/Adressable FIRE PANEL + Batteries		1		R -
2.1.2	Program FIRE PANEL Section 1- Preliminary&General		98		R -
2.1.3	Repeater Panel + Power Supply & Battery		-		R -
2.1.4	Addressable Smoke Detectors + void		27		R -
2.1.5	Addressable Heat Detectors		1		R -
2.1.6	Addressable Breakglass units (RED)		6		R -
2.1.7	Addressable Breakglass units (GREEN)				R -
2.1.8	Addressable Relay Unit (A51E-1)		12		R -
2.1.9	24V Power Supplies		12		R -
2.1.10	Addressable Interface Unit (A45E-2)		12		R -
2.1.11	FE233 Door Magnets		24		R -
2.1.12	Soundbomb		3		R -
2.1.13	Loop Beacon + PSU (ZP755V)		1		R -
2.1.14	Loop Sounder (ZP755R-2W)				R -
2.1.15	Cables PH120		1 500		R -
2.1.16	Installation 15%		1		R -
2.1.17	Connection to link to gate control		1		R -
2.1.18	50mm x 50mm Execuduct	m	30		R -
2.1.19	Coordination and integration with Access Control door magnets (at teller booths) and link.	Item	1		R -
2.1.20	Testing and Commissioning	Item	1		R -
2.1.21	Documentation "As installed" drawings and 3 sets of manuals	Sum	1		R -
2.1.22	Guarantee 24 month equipment and installation guarantee period	Sum	1		R -
2.1.23	Maintenance Agreement 36-month maintenance agreement	Sum	1		R -
Total Carried Forward to: Section 4					R -



DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 3- CCTV

R -

Item No.	Description	Unit	QTY	Rate	Amount
	Supply and Installation of the Following Equipment (Installation Elsewhere) Camera Equipment Notes: 1. The contractor is to provide a complete CCTV system incorporating at least the equipment as listed below. 2. If the Tenderer deems it necessary, additional equipment must be included to complete his/her proposed design/installation.				
3.1	Section 1- Preliminary&General Supports Hikvision Embedded Open Platform (HEOP) and importing third party applications. Supports 1.5 Tops computing power, 60 MB system memory, 400 MB smart RAM, and 2 GB eMMC storage for sharing resources. High quality imaging with 4 MP resolution. Excellent low-light performance with powered-by-DarkFighter technology. Efficient H.265+ compression technology Clear imaging against strong back light due to 120 dB true WDR technology Focus on human and vehicle targets classification based on deep learning Water and dust resistant (IP67)  Product Code: 3322550 Product Model: DS-2CD3046G2-IS(2.8mm)(H)(O-STD)	Each	13		R -
3.2	IP Camera - Interior Supports Hikvision Embedded Open Platform (HEOP) and importing third party applications Supports 1.5 Tops computing power, 60 MB system memory, 400 MB smart RAM, and 2 GB eMMC storage for sharing resources High quality imaging with 4 MP resolution Excellent low-light performance with powered-by-DarkFighter technology Efficient H.265+ compression technology Clear imaging against strong back light due to 120 dB true WDR technology Focus on human and vehicle target classification based on deep learning Water and dust resistant (IP67) and vandal-resistant (IK10)  Product Code: 311322504 Product Model: DS-2CD3146G2-IS(2.8mm)(H)(O-STD)	Each	19		R -





DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 3- CCTV

R -




Item No.	Description	Unit	QTY	Rate	Amount
3.3	Video Surveillance	Each	1		R -
	<p>Delivery III, HikCentral video surveillance base package - hardware mode- which includes preinstalled all fundamental features of video surveillance system, 64 cameras manageable. Inclusive of software.</p>  <p>Product Code: 400101076 Product Model: HikCentral-P-VSS-Base/64Ch</p>				
3.4	NVR		2		R -
	<p>False alarm reduction for up to 4-ch 1080P; Facial Recognition for up to 4 channels picture stream or 1 channels video stream; Facial recognition and perimeter protection cannot be enabled at the same time. Support 16 face libraries, up to 10,000 face pictures in total; 320Mbps Bit Rate Input Max(up to 16-ch IP video), 8 SATA Interfaces,2 HDMI ouputs,1 VGA port,1 eSATA, alarm I/O: 16/8, 2U case,19" (Recording space for 150 days)</p>  <p>Product Code: 303614260 Product Model: DS-9616NXI-I8/S(STD)(C)</p>				
3.5	Cabinet		1		R -
	19" Rack minimum 42U floor standing server cabinet accessible from three sides with the front hinged door, plinth for cable entry, trays for all equipment which is not rack mounted and a low dB, ventilation fan with removable filter. Ensure size to house all equipment.				
3.6	Power surge arrestor		2		R -
3.7	5kVA UPS APC Smart UPS (A)		2		R -
	APC Smart-UPS SRT 5000VA, 4500W 3U Rack Mount 230V				
3.8	Battery APC (B)		4		R -
	APC Smart-UPS SRT 192V kVA and 6kVA 3U Rack MountBattery Pack				
3.9	Surtrk2 mounting kit		2		R -
3.10	APC temperature sensor AP935T		1		R -
3.11	APC Static switch AP7724		1		R -

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 3- CCTV

R -

Item No.	Description	Unit	QTY	Rate	Amount
3.12	APC Static switch AP7768		1		R -
3.13	APC Static switch AP7769		1		R -
3.14	Wall-mounted 14-way DB with 5 x 2 pole 10A, 6kA breakouts Network Equipment.		1		R -
3.15	24 Port POE Switch		1		R -
3.15.1	L2, Smart Managed, 24 Gigabit PoE ports, 2 Gigabit SFP ports, 802.3af/at, PoE power budget 370W, max. 300 meter long distance PoE transmission, PoE watchdog, VLAN, QoS, SNMP, Port Mirroring, Storm Control, Visualized Topology Management, Network Health Monitor, Real-Time Alarm Push and Video Control and Preview  Product code: 301802031 Product model: DS-3E1526P-SI		1		R -
3.15.2	SFP TX1310nm/1.25G, RX1550nm/1.25G, LC, single mode and single fiber, 20km, 0~70°C, SFP, should work with HK-SFP-1.25G-20-1550 as a pair  Product code: 307400045 Product model: HK-SFP-1.25G-20-1310		3		R -
3.15.3	SFP TX1550nm/1.25G, RX1310nm/1.25G, LC, single mode and single fiber, 20km, 0~70°C, SFP, should work with HK-SFP-1.25G-20-1310 as a pair  Product code: 307400046 Product model: HK-SFP-1.25G-20-1550		3		R -
	Remote Monitor Screens.				
3.16.1	32" LED 31.5" 1080P, HDMI/DVI/VGA/BNC input, BNC output, build-in speaker, USB, view angle:178°/178°, plastic casing,VESA, 7*24h  Product code: 302502499 Product model: DS-D5032QE		4		R -

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 3- CCTV

R -					
Item No.	Description	Unit	QTY	Rate	Amount
3.16.2	Wall-mounted bracket Wall-mounted bracket, Dimension 250 mm × 220 mm × 25mm, VESA 200 (H) mm × 200 (V) mm, recommended for small size monitor (≤40-inch)		4		R -
					
	Product code: 190115892 Product model: 190115892 Radio Link to Guardhouse.				
3.17	Wireless VGA extender minimum 100m		1		R -
3.18	24VDC,2A power supply		2		R -
3.19	Antenna with cable		2		R -
3.20	Wall type mounting brackets		2		R -
3.21	CAT6 cable 1550m UTP CAT 6, 305 meters,Core diameter: 0.53mm,OFC,CM,white	m	1550		R -
					
	Product code: DS-1LN6-UE-W Product model: CAT 6 Network Cable (Support flame resistant)				
3.22	RJ45 Connector RJ45 Plug for Cat.6, gold plated, Polycarbonate, UL94V-2, 100 units/box	Item	124		R -
					
	Product code: 307400113 Product model: DS-1LN6U-G(O-STD) Mounting Brackets				
3.23	Camera wall type mounting brackets (outside camera's)		13		R -
3.24	Total installation cost to ensure a functional complete system	Sum	1		R -
3.25	Balancing, testing and commissioning of the CCTV installation in accordance with the Specifications	Sum	1		R -
3.26	Allow for production of "As installed" drawing - the Contractor is to return to and hand over to the Engineer a complete set of fully Marked-up "As built/installed" drawings.	Item	1		R -



DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 3- CCTV

R -





Item No.	Description	Unit	QTY	Rate	Amount
3.27	Supply and hand over to the Engineer THREE properly bound sets of copies of "As installed" equipment manuals.	Item	1		R -
3.28	24-Month equipment and installation guarantee period.	Sum	1		R -
3.29	36-Month maintenance agreement.	Sum	1		R -
3.30	All required operating licences	Sum	1		R -
3.31	25 x 25 x 2,4mm square tubing with 100mm spaced 8mm round bar securely mounted to floor and wall complete, including lockable door with two keypad locks	No	1		R -
Total carried forward to summary					R -

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 4- Access Control

R -

Item No.	Description	Unit	QTY	Rate	Amount
	Biometric System Installation <u>JBCC Work Group 170 to Apply</u> Notes: 1. The Contractor is to provide a complete biometric system incorporating at least the equipment as listed below. 2. If the Tenderer deems it necessary, additional equipment may be suggested to complete his/her proposed design/installation.				
	Section 1- Preliminary&General				
4.1	Bio Reader (Fingerprint, tag, and code)		19		R -
	2.4 inch LCD Display Standalone Access Control Terminal, Built-in Mifare card reading module, Storage with 3,000 cards, 3,000 fingerprints and 100,000 access control events; Support Access Control and Time Attendance Function, Optical Fingerprint Module; Uplink Communication: TCP-IP, WIFI; Supports Wiegand out(W26/W34) and Wiegand in(W26/W34). Supports ISUP5.0, ISAPI multiple languages: English, Spanish, Italian, French, Portuguese (Brazilian), Vietnamese, Arabic, Thai, Turkish, Indonesian, Ukrainian Power adapter included in the package (European Standard) 4 colours available (Black, Gold, Silver and White), remark colour choices when placing order.  (Outside unit to include metal cover) Product code: 302918016 Product model: DS-K1T804BMF				
4.2	Biometric Server		1		R -
4.3	BioAccess Software		1		R -
4.3.1	New! Delivery I, HikCentral access control base package - which includes prerequisites for door expanding, all fundamental features of ACS and 16 doors manageable and recording of all events.  Product code: 401000040 Product model: HikCentral-P-ACS-Base/16Door				

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 4- Access Control

					R	-
4.3.2	Delivery I, 1 door manageable  Product code: 401000019 Product model: HikCentral-P-ACS-1Door		3		R	-
4.4	UV Resistant CAT6 cable UTP CAT 6, 305 meters, Core diameter: 0.565mm, OFC, CM, orange  Product code: 307400043 Product model: DS-1LN6-UU	m	950		R	-
4.5	R145 Connectors with boots including fitting RJ45 Plug for Cat.6, gold plated, Polycarbonate, UL94V-2, 100 units/box  Product code: 307400144 Product model: DS-1LN6U-G(O-STD)	Units	120		R	-
4.6	Exit buttons Aluminum alloy panel, metal button; Dimension(L×W×H): 90×35×28.9mm(3.54×1.38×1.14").  Product code: 302900560 Product model: DS-K7P02	No.	7		R	-
4.7	Complete Installation providing all entrance, exit events into software and record events.	Sum	1		R	-
	Balancing, testing and commissioning of the Biometric System installation in accordance with the Specification.		1		R	-
4.8	Allow for the production of "As installed" drawings - the Contractor is to return and hand over to the Engineer a complete set of fully Marked-up "As built/installed" drawings.	Sum	1		R	-
4.9	Supply and hand over to the Engineer THREE properly bound sets of copies of "As installed" equipment manuals.	Item	1		R	-
4.10	24-Month equipment and installation guarantee period.	Item	1		R	-

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 4- Access Control

					R	-
4.11	36-Month maintenance agreement.	Item	1		R	-
4.12	Exit button and Door magnets to be installed utilizing alluminium frames as far as possible.	Sum	1		R	-
	Co-ordination between frame manufacturer and Access Control Contractor.					
Total carried forward to summary					R	-

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 5- Alarm Systems

R -

Item No.	Description	Unit	QTY	Rate	Amount
5.1	Alarm System				
5.1.1	Supply and install alarm system in office block comprising control panel, 22 PIR and 9 door magnets.				
	Alarm system in office block - Total	Sum	1		R -
	Section 1- Preliminary&General				
5.2	Radio Link to Guard House				
5.2.1	Elpro 105U-1 (4in / 4 relay out), 24V	Each	2		R -
5.2.2	24VDC, 2A Power Supply	Each	2		R -
5.2.3	433MHz Antenna with 10m cable	Each	2		R -
5.3	Balancing, testing and commissioning of the Alarm system installation in accordance with the Specification.	Each	1		R -
5.4	Allow for the production of "As installed" drawings - the Contractor is to return and hand over to the Engineer a complete set of fully Marked-up "As built/installed" drawings.	Each	1		R -
5.5	Supply and hand over to the Engineer THREE properly bound sets of copies of "As installed" equipment manuals.	Each	3		R -
5.6	24-Month equipment and installation guarantee period.	Each	1		R -
5.7	36-Month maintenance agreement	Each	1		R -
Total carried forward to summary					R -

DoD JSB Garrison
Electronic Installation - Security Upgrades and CCTV System
Section 6- PA System

Item No.	Description	Unit	QTY	Rate	Amount
6.1	Supply and install PA System				
6.1.1	L/ speaker 6.5" 100V 5W - Ceiling mounted		16		R -
6.1.2	L/ speaker 6.5" 100V 5W - Wall mounted				R -
6.1.3	= 'Section 1-P&Gs'!R[-9]C[-1]				R -
6.1.4	Volume control 30W 100V TOA		4		R -
6.1.5	Zone Amp				R -
6.1.6	Earphone				R -
6.1.7	BPT Intercom system				
6.1.8	Cables FR120 Cables		1200		R -
6.1.9	Mixer Amplifier plus controller + music play capability		1		R -
6.1.10	Installation		1		R -
6.1.11	Microphone		1		R -
6.1.12	Testing and Commissioning of System	Item	1		
6.1.13	"As Installed" Drawings	Sum	1		
6.1.14	Three property bound "As Installed" equipment manuals	Sum	1		
6.1.15	Guarantee				
6.1.15.1	24 Month equipment installation guarantee period	Sum	1		
6.1.15.2	36 month maintenance agreement		1		
Total Carried Forward to: Section 5					R -

FINAL SUMMARY

**GAUTENG DEPARTMENT OF PUBLIC WORKS
RENOVATIONS OF GARRISON FINANCE OFFICE FOR
DEPARTMENT OF DEFENSE
TENDER BILL OF QUANTITIES- REV00**

[illegible]

Part C3: Scope of Work

C3 Scope of Work

PG-01.2 (EC) SCOPE OF WORKS – JBCC 2000 PRINCIPAL BUILDING AGREEMENT (Edition 6.2 of May 2018)

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.</i>		
Tender / Quotation no:	PT24/019	Reference no:	

C3. Scope of Works

C3.1 EXTENT OF THE WORKS

The extent of the works includes alterations, repairs and refurbishment of existing finance offices, including services such wet services, mechanical works, electrical works, civils works, etc.

C3.2 ORDER OF THE WORKS

Describe any procedure affecting the sequence of construction or other activities.

C3.3 BUILDINGS OCCUPIED

The buildings are not occupied. However, the bidder to take note that other buildings next to finance office are occupied.

C3.4 ACCESS

Provide details of any special requirements/restrictions with regard to access.

C3.5 STANDARD MINIMUM REQUIREMENTS

In terms of section 5(2) of the Construction Industry Development Board Act, 2000 (Act no. 38 of 2000) (the Act), the Construction Industry Development Board is empowered to establish and promote best practice standards, Standard Requirements and Guidelines which includes the following but not limited to:

- C3.5.1 cidb Best Practice: Green Building Certification, No. 34158 Government Gazette, 1 April 2011
- C3.5.2 cidb Standard for Developing Skills through Infrastructure Contracts, No. 36760 Government Gazette, 23 August 2013
- C3.5.3 cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013
- C3.5.4 cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts, No. 41237 Government Gazette, 10 November 2017
- C3.5.5 cidb Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on Construction Works Contracts, No. 41237 Government Gazette, 10 November 2017
- C3.5.6 cidb Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on Construction Works Contracts, No. 42021 Government Gazette, 9 November 2018
- C3.5.7 cidb Standard for Developing Skills through Infrastructure Contracts, No 48491 Government Gazette, 23 April 2023.

C3.6 CONTRACT PARTICIPATION GOALS AND CIDB BUILD PROGRAMME

Provision has been made within the Contract Participation Goal section in the Bill of Quantities for the respective CPGs. Prescribed Profit and Attendance percentages have been stipulated, all inclusive of associated costs to the contractor for implementation and allowance for submitting reports to the Employer's Representative on a monthly basis in terms of monthly and accumulative targets achieved with audited supporting documentation.

Monthly progressive reports to be submitted to the Employer's representative indicating the percentage targets achieved which must be reconciled upon completion of the project and to form part of the final account.

The contractor shall achieve in the performance of this contract the following Contract Participation Goals (CPGs) as indicated below.

C3.6.1 Minimum Targeted Local Material Manufacturer Contract Participation Goal

The Minimum Targeted Local Building Material Manufacturers CPG is *not applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Manufacturers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020.

A Targeted Local Material Manufacturer is a targeted enterprise that operates or maintains a factory or establishment that produces on its premises materials or goods required by the principal contractor for the performance of the contract.

Note: Adapted from SANS 10845-7:2015, definition 2.13

Preference shall be given to the Targeted Local Material Manufacturer where feasible in **not applicable**, and provided that:

- (a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,
- (b) The non-availability of such materials shall not adversely affect the desired progress of the specific works,
- (c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,
- (d) Materials of at least **not applicable** of the total value of materials purchased excluding VAT to be sourced from within **not applicable** radius of the project site,
- (e) Material of at least **not applicable** of the total value of materials purchased excluding VAT to be sourced from within **not applicable** radius of the project site.

C3.6.2 Minimum Targeted Local Building Material Suppliers Contract Participation Goal

The Minimum Targeted Local Building Material Suppliers CPG is *not applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Suppliers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

A targeted supplier is a targeted enterprise that

- a) owns, operates or maintains a store, warehouse or other establishment in which goods are bought, kept in stock and regularly sold to wholesalers, retailers or the public in the usual course of business; and
- b) engages, as its principal business and in its own name, in the purchase and sale of goods.

Note: Adapted from SANS 10845-7:2015, definition 2.14

Preference shall be given to the local material suppliers where feasible in the **not applicable**, and provided that:

- (a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,
- (b) The none availability of such materials shall not adversely affect the desired progress of the specific works,
- (c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,
- (d) Materials of at least **not applicable** of the total value of materials purchased excluding VAT to be sourced from within **not applicable** of the project site,
- (e) Material of at least **not applicable** of the total value of materials purchased excluding VAT to be sourced from within **not applicable** of the project site.

C3.6.3 Minimum Targeted Local Labour Skills Development Contract Participation Goal

The Minimum Targeted Local Labour Skills Development CPG is *not applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local labour in executing this contract. This is required to be done through the use of both traditional building techniques and labour-intensive construction techniques careful and considered construction planning and implemented in the project irrespective whether a minimum percentage Participation Goal is applicable or not.

The Minimum Targeted Local Skills Development Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

Targeted labour: individuals who:

- a) are employed by the principal contractor, sub-contractor or targeted enterprises in the performance of the contract;
- b) are defined as the target group in the targeting data; and
- c) permanently reside in the target area or who are recognized as being residents of the target area on the basis of identification and association with and recognition by the residents of the target area.

Adapted from SANS 10845-7:2015, definition 2.12

C3.6.4 CIDB BUILD PROGRAMME: Minimum Targeted Enterprise Development Contract Participation Goal

The Minimum Targeted Enterprise Development Contract Participation Goal is *not applicable* to this project.

The aim of this best practice standard for indirect targeting for enterprise development in accordance with the Standard for Indirect Targeting for Enterprise Development (published in Government Gazette 36190 of 25 February 2013), as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. is to promote enterprise development by providing for a minimum Contract Participation Goal (CPG) of **not applicable** of the contract amount as defined in the Standard (Tender amount, excluding allowances and VAT) on selected contracts to be undertaken by joint-venture partners or to be sub-contracted to developing contractors that are also to be beneficiaries of enterprise development support from the main contractor.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

The lead partner or main contractor shall dedicate a **minimum insert percentage Min 5% and Max 30%** of the tender value at the time of award, excluding allowances and VAT, to provide developmental support to targeted subcontractor or joint venture partner applicable to contracts in Grades 7 to 9, General Building and Civil Engineering contracts. Preference will be given to insert type of enterprises, e.g. General Building, Electrical, Mechanical, Plumbing, etc. .It could be either or any combination of all Enterprises.

Failing to achieve the targeted Contract Skills Development Goal will result in A) a thirty percent (30%) penalty of the value of the portion not achieved, excluding VAT, and B) the issuing of completion certificates only after the completion certificate of achieving the skills development goal, counter-signed by the relevant individuals has been submitted, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

C3.6.4.1 Criteria

The main or lead partner of the successful bidder shall:

- (a) There must be a needs analysis for indirect targeting and development or skill standard and should be development in at least any two developmental areas namely;
 - Administrative and cost control systems
 - construction management systems and plans
 - planning, tendering and programming
 - business; technical; procurement skills
 - legal compliance
 - credit rating/history; financial loan capacity/history
 - contractual knowledge
- (b) The above needs analysis shall be mutually agreed upon between contractor and targeted enterprise
- (c) The contractor shall appoint an enterprise development coordinator to:
 - perform needs analysis on the targeted enterprise to identify developmental goals
 - develop a project specific enterprise development plan to improve the targeted enterprise/s performance in the identified developmental areas
 - provide internal mentorship support to improve the targeted enterprise/s performance
 - monitor and submit to the employer's representative a monthly enterprise development report thereby reporting on the progress of the agreed development areas with the targeted enterprise/s
 - submit a project completion report to the Employer's representative for each targeted enterprise.

C3.6.4.2 Management

The contractor shall provide a competent person/s to provide internal mentorship to the Targeted Enterprise/s in the two agreed developmental areas.

C3.6.4.3 Competence Criteria for an Enterprise Development Co-ordinator

The enterprise development co-ordinator shall have the following competencies:

- Minimum experience of 5 years in the construction industry at Managerial level as a Site Agent, Contracts Manager, Site Manager, Construction Manager, Business Development Manager or Enterprise Development Manager.
- Minimum experience of 2 years in training and development in Building or Construction; and
- National Diploma or B Degree in the Built Environment or Business Management

C3.6.4.4 Format of Communications

The contractor shall submit to the Employer's Representative:

- *Project interim reports* in the specified format (**ED105P**) detailing interim values of the CPG that was achieved together with an assessment of the enterprise development support provided should be tabled and discussed at least monthly at progress meetings between employer's representative and the contractor;
- *Project completion report* in the specified format (**ED101P**) to the Employer's Representative for acceptance within 15 days of achieving practical completion. The report shall include the value of the CPG that was certified in accordance with the contract, cidb registration numbers of each and every targeted enterprise, and the value of the subcontracted works or of the joint venture entered into; and the participation parameter
- *Enterprise development declaration* (**ED104P**).

C3.6.4.5 The Key Personal

The contractor shall appoint an Enterprise Development Co-ordinator and a competent person/s to provide internal mentorship.

C3.6.4.6 Management Meetings

The contractor shall report to the Employer's Representative on the implementation and progress of the targeted enterprise development and CPG at monthly progress site meetings.

C3.6.4.7 Forms for contract administration

The contractor shall submit to the Employer's Representative the following proformas:

- Form ED 105P Project Interim Report
- Form ED 104P Enterprise Development Declaration
- Form ED 101P Project Completion Report

C3.6.4.8 Records

The contractor shall:

- keep records of the targeted enterprise development

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

- keep records of the payments made to the targeted enterprises in relation to the CPG.
- ensure all the documentation required in terms of the Standard is provided with each monthly progress payment certificate and according to a prescribed format where applicable.

C3.6.4.9 Payment Certificates

The contractor shall:

- achieve the measurable CPG and providing enterprise development support to the targeted enterprise/s as per the Standard.
- submit payment certificates to the Employer Representative at intervals determined in the Contract.

C3.6.4.10 Compliance requirements

Non-compliance with the Best Practice Project Assessment Scheme

The wording of regulation 27A of the cidb regulations makes provision for the Board to enforce the cidb code of conduct in the event of clients being found to be in breach of the best practice project assessment scheme.

- Not including the requirements of the cidb standards in the conditions of tender
- Not registering the award of contract on the cidb Register of Projects (RoP)
- Not reporting practical completion on the cidb Register of Projects (RoP)

3.6.5 **CIDB BUILD PROGRAMME: Minimum Targeted Contract Skills Development Goal (CSDG)**

The Minimum Targeted Contract Skills Development CPG is *not applicable* to this project.

The contractor shall achieve or exceed in the performance of the contract the Contract Skills Development Goal (CSDG) established in the Standard for Developing Skills through Infrastructure Contracts (published in Government Gazette No 48491 of 23 April 2023 and the cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.

Failing to achieve the targeted Contract Skills Development Goal will result in A) a **thirty percent (30%)** penalty of the value of the portion not achieved, excluding VAT, and B) the issuing of completion certificates only after the completion certificate of achieving the skills development goal, counter-signed by the relevant individuals has been submitted, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

C3.6.5.1 Methodology

The contractor shall achieve the measurable contract skills development goal by providing opportunities to learners requiring structured workplace learning using one or a combination of any of the following in relation to work directly related to the contract or order:

Method 1: structured workplace learning opportunities for learners towards the attainment of a part or a full occupational qualification;

Method 2: structured workplace learning opportunities for apprentices or other artisan learners towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least sixty percent (60%) of the artisan learners being holders of public TVET college qualifications;

Method 3: work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas;

Method 4: structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council.

The contract skills participation goals, expressed in Rand, shall not be less than the contract amount multiplied by a percentage (%) factor given in Table 1 in the Standard for the applicable class of construction works.

Table 1: Contracting skills development goals for different classes of engineering and construction works contracts

Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004		Construction skills development goal (CSDG) (%)
Designation	Description	
CE	Civil Engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 2 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

Table 2: Notional Cost of Training per Headcount

Source: cidb Standard for Skills Development

Type of Training Opportunity	Provision for stipends (Unemployed learners only)	Provisions for mentorship	Provisions for additional costs*	Total costs	
				Unemployed learners	Employed learners
Method 1					
Occupational qualification	R7 000	R0	R9 000	R16 000	R9 000
Method 2					
TVET College graduates	R14 000	R0	R9 000	R23 000	N/A
Apprenticeship	R14 000	R0	R12 000	R26 000	R12 000
Method 3					
P1 and P2 learners	R24 000	R20 000	R4 500	R48 500	N/A
Method 4					
Candidates with a 3 year diploma	R37 000	R20 000	R4 500	R61 500	R20 000
Candidates with 4 year qualification	R47 000	R20 000	R4 500	R71 500	R20 000

Note: the required CPG will be recalculated based on the awarded tender amount and "Contract amount" once the beneficiaries have been appointed and actual costs are known. The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI. Should the rates increase after bid award or during construction the rates will be adjusted as a remeasuarble item.

- The successful contractor may employ part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~ directly or through a Skills Development Agency (SDA), (A1 - List of cidb accredited SDAs).
- The successful contractor must employ at least sixty percent (60%) of the learners from an FET / TVET college should the contractor select to have part/full occupational qualification learners and trade qualification learners contributing to the CSDG.
- The successful contractor shall employ at least **insert applicable percentage, both in words and figures** from eligible part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~ in the employment of the employer.
- The successful contractor shall ensure that no single method shall contribute more than seventy five percent (75%) of the CSDG for the contract.
- The successful contractor may only place thirty three percent (33%) employed employees or that of his subcontractors contributing to the CSDG.
- The contractor shall employ at least sixty percent (60%) of the learners from a Public FET / TVET college should the contractor select to have trade qualification learners (Method 2) contributing to the CSDG.
- One of the objectives of the project is to train **insert applicable number, both in words and figures** Occupational qualifications, trade qualification, work integrated learners – P1 and P2 learners, professional candidates. ~~(Delete that which is not applicable)~~

C3.6.5.2 Management

- The successful contractor must keep site records regarding the part/full occupational qualification learners', trade qualification learners', work integrated learners' or candidates' ~~(delete that which is not applicable)~~ progress, site attendance, hours worked and other relevant information as required by the Standard.

- (b) The successful contractor shall provide the required number of appropriately qualified mentors to the maximum number of part/full occupational qualification learners, trade qualification learners, work integrated learners in the proportion as specified in the Standard.
- (c) The successful contractor shall provide a supervisor to manage the training of the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates. ~~(delete that which is not applicable)~~
- (d) The successful contractor shall submit to the employer's representative a baseline training plan in the specified format (Pro-forma A2) for the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates ~~(delete that which is not applicable)~~ within 30 days of start of the contract.
- (e) The successful contractor shall submit to the employer's representative project interim report in the specified format (Pro-forma A3) on the progress of each of part/full occupational qualification learner, trade qualification learner, work integrated learner, candidate ~~(delete that which is not applicable)~~ every three months.
- (f) The successful contractor shall submit to the employer's representative the names and particulars in the specified format (Pro-forma A4) of the supervisor, mentors for the part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~ within 30 days of start of the contract.
- (g) The successful contractor shall keep a daily record of all the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates on site and their daily activities and shall be made available to the employer's representative on request.
- (h) The successful contractor shall submit to the employer's representative the reports on the progress and status of the part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~ with the monthly invoice for the payment certificate.
- (i) The successful contractor shall have health and safety inductions for all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~.
- (j) The successful contractor shall conduct entry and exit medical tests of all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~.
- (k) The successful contractor shall provide personal protective equipment (PPE) to all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates ~~(delete that which is not applicable)~~ at the start of their employment on site.
- (l) Based on the agreed skills methods the contractor may employ part/full Occupational Qualification Learners and /or Trade Qualification Learners and/or Work Integrated Learners and/or Candidates ~~(delete that which is not applicable)~~ directly or through a Skills Development Agency (SDA), training provider or skills development facilitator (Form A1 - List of cidb accredited SDAs). The contractor shall ensure that no more than one Method shall be applied to any individual concurrently in the calculation of the CSDG for the contract.

C3.6.6 NATIONAL YOUTH SERVICE TRAINING AND DEVELOPMENT PROGRAMME (NYS)

The National Youth Service Training and Development Programme is *not applicable* to this project.

The programme shall be implemented in terms of the Implementation of the National Youth Service Programme under the Expanded Public Works (EPWP) and shall be priced in the CPG section of the Bills of Quantities. Monthly reports are to be submitted to the Employer's Representative.

Failure by the contractors to achieve the specified number to be trained in the NYS section of the CPG section within the Bills of quantities will result in a Payment reduction as per bill of quantities per person, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

C3.6.7 LABOUR-INTENSIVE WORKS

Labour Intensive Works is *not applicable* to this project.

Where labour intensive work is specified in the Bill of Qualities and specified by "LI" the contractor must price for and include in rates. Contractors are expected to use their initiative to identify additional activities that can be done labour-intensively to comply with the set minimum labour intensity target. Allowance must be made for submitting monthly reports illustrating the value of the works executed under Labour Intensive Works.

Failure by the contractor to achieve the specified value of the Labour Intensive Participation Goal as stipulated within the Bills of Quantities will result in a **thirty percent (30%)** penalty of the value of the works not done by means of labour intensive methods, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

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 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

C3.6.7.1 GENERIC LABOUR-INTENSIVE SPECIFICATION

Contractors are referred to the Guidelines for the Implementation of Labour-intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP) for the generic labour-intensive specification applicable to the contract.

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- trenches having a depth of less than 1.5 metres
- stormwater drainage
- roads
- sidewalks and non-motorised transport infrastructure
- water and sanitation

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

Hand excavatable material

Hand excavatable material is:

a) granular materials:

- i) whose consistency when profiled may in terms of Table 3 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 3 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 is material with a particle size greater than 200mm, a cobble and gravel is material 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° with respect to the horizontal) into the material being used.

Table 3: 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 up to 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.

Trench excavation

All hand excavatable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

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;

a) to 90% Mod AASHTO;

b) 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

c) 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.

Excavation

All excavatable material including topsoil classified as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand. Any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand. Haulage equipment should be selected in a manner that allows loading by hand to the greatest extent possible.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved. Appropriate rollers should be used where higher (than can be achieved by hand) levels of compaction are required or for large areas.

Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to 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.

Manufactured Elements

Elements manufactured or supplied 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. Where the mass of an element exceeds 55 kg, consideration should be given to the size of the element relative to its total mass related to the number of workers who would be needed to lift such mass

C3.7 Submission of Accrual Reports

The Contractor shall submit accrual reports to the client representative at the end of March and September each year for the duration of the Service Contract period from the date of appointment

Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

up to and including project closeout. This is to ensure that PMTE complies with the accounting framework GRAP, which requires that PMTE disclose all its accruals as at the end of each reporting date.

C3.8 Submission of Monthly Local Material Utilisation Report (Local Content)

Submission of Monthly Local Material Utilisation Report (Local Content) *not applicable* to this project.

The Contractor shall when applicable to this project, be responsible for record keeping, documenting and submission of monthly local material utilization report with supporting documentation to the Employer's representative within 7 working days of the beginning of the successive month, in terms of DTI&C designated industry/sector/sub-sector schedule as per the PA36 and Annexures C attached to the tender document. The final percentage achievement to be reconciled upon completion of the project and form part of the final account.

Failure by the contractor to achieve the specified percentage of local content per designated industry/sector/sub-sector as listed will result in a thirty percent thirty percent (30%) penalty of the value not achieved, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

Examples of calculating CPGs and related penalties

CPGs values are based on the Tender Amount at the time of the award. Determining the actual values is based either on the Tender Amount including allowances and Vat or the Tender Amount at the time of award excluding allowances and VAT, where Allowances include the following:

- Provisional amounts
- CPG allowances
- Nominated and/or selected subcontractors
- Contract price adjustment (Not provided for within the B of Q by NDPWI)
- Contingency amounts (Not provided for within the B of Q by NDPWI)

CPG values in the CPG Bill of Quantities Section will be recalculated based on the “Tender Amount” or the “Contract Amount” which ever applicable and the provisional amounts adjusted accordingly. Sanctions (penalties) are applicable to all CPGs where the contractor fails to achieve the minimum specified requirements, unless the contractor can prove to the Employer’s satisfaction that the non-achievement was beyond his/her control. No penalties will be applied should the CPG value, based on the original “Tender Amount” or the “Contract Amount”, has been achieved.

1.1 Targeted Local Building Material Manufacturers CPG

When applicable, the CPG is expressed as a percentage of the “Contract Amount”, i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:

“Tender Amount” = R150 Mil all inclusive of allowances and VAT

“Contract Amount” = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)

CPG to be achieved = 5% as specified in the Scope of Works (PG01.2)

CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local manufacturers, excluding VAT)

Calculation of penalty:

Percentage penalty applicable = 10% as specified in the Scope of Works (PG01.2)

CPG target value = R6,5 Mil excluding VAT

CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT

Penalty = R1 Mil x 10% = R100 000 excluding VAT

1.2 Targeted Local Building Material Suppliers CPG

When applicable, the CPG is expressed as a percentage of the “Contract Amount”, i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:

“Tender Amount” = R150 Mil all inclusive of allowances and VAT

“Contract Amount” = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)

CPG to be achieved = 5% as specified in the Scope of Works (PG01.2)

CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local suppliers, excluding VAT)

Calculation of penalty:

Percentage penalty applicable = 20% as specified in the Scope of Works (PG01.2)

CPG target value = R6,5 Mil excluding VAT

CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT

Penalty = R1 Mil x 20% = R200 000 excluding VAT

1.3 Targeted Local Labour Skills Development CPG

When applicable, the CPG is expressed as a percentage of the total number working days required to

Any reference to words “Bid” or “Bidder” herein and/or in any other documentation shall be construed to have the same meaning as the words “Tender” or “Tenderer”.

complete the Works.

CPG calculation example:

“Tender Amount” = R150 Mil all inclusive of allowances and VAT
“Contract amount” = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
Number of working days required to complete the Works based on the construction period = 600 days
CPG percentage participation to be achieved = 30% as specified in the Scope of Works (PG01.2)
Required number of working days training to be provided = 180 days (600 x 30%)

Calculation of penalty:

Payment reduction = R 5 000 per day for not providing training as specified in the Scope of Works (PG01.2)
CPG = 600 working days x 30% = 180 working days training to be provided
CPG Achieved = 160 days (20 days shortfall where no training was provided)
Penalty = 20 days x R5 000 payment reduction per day= R100 000 excluding VAT

1.4 Cidb BUILD Programme: Enterprise Development

When applicable, the Enterprise Development CPG expressed as a percentage of the “Contract amount” = Tender amount at the time of award excluding allowances and VAT. Failure to achieve the minimum Targeted Local Labour Skills Development CPG will result in a payment reduction of an amount specified in the Scope of Works (PG01.2) per working day where training was not provided.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the “Contract Amount” as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the “contract Amount”, the number of beneficiaries to be trained and the actual cost for providing the training.

Part 1: Calculation of 5% CPG example:

“Tender Amount” = R150 Mil all inclusive of allowances and VAT
“Contract Amount” = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG percentage participation to be achieved = 5% as specified in the Scope of Works (PG01.2) CPG value = R6,5 Mil (Value of work to be subcontracted to emerging enterprises)

Calculation of penalty

Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.2)
CPG Minimum 5% = R6,5 Mil
Achieved = R5,5 Mil (Only subcontracted work to the value of R5,5 Mil, i.e. R1 Mil shortfall)
Penalty = R1 Mil x 30% = R300 000 Excl. VAT

Part 2: Calculations in terms of training to be done:

The number of enterprises to be developed is subject to the contract amount and the apportionment of the work as per Example 1 below.
Number of enterprises to be trained = 6 x 1 GB subcontractors
Total cost for training = R 1 660 000

Calculation of penalty

Total number of enterprises to be trained = 6
Total number trained = 4 (2 Shortfall)
Training cost per beneficiary = R1 660 000 / 6 = R 276 666,67 per beneficiary
Penalty = R 276 666,67 x 2 x 30% = R166 000 Excl. VAT

B of Q Item	Description	Unit	Rate	Quantity	Amount (R)
5	Enterprise Development				
5.1	Enterprise Development of Targeted Enterprise or JV partners				
5.1.1	Appointment of training co-ordinator	Per Quarter	45 000	8	360 000
5.1.2	Appointment of Mentor /Training Service provider	Per Quarter	135 000	8	1 080 000

B of Q Item	Description	Unit	Rate	Quantity	Amount (R)
5.1.3	Needs Analysis and Enterprise Development Plan per Targeted Enterprise	No.	5 000	6	30 000
5.1.4	Monitoring and Interim reporting per targeted enterprise	Per Quarter	20 000	8	160 000
5.1.5	Project Completion report per Targeted Enterprise	No.	5 000	6	30 000
	Provisional Sum to be carried over to CPG bill of quantities				1 660 000
	"Contract amount" Tender amount excl. allowances and VAT,	130 000 000			
	CPG Monetary value (5%) to be subcontracted to beneficiaries for training	6 500 000			
	No of enterprises based on the CPG value	6	Grade 1 / 2 GB/CE,ETC.		
	Contract period (months)	24			
	Note: Rates to be determined by PQS and adjusted to accepted quotation amounts				

1.5 Cidb BUILD Programme: Skills Development (Principal contractor including subcontractors and consultants)

When applicable, the contract skills development participation goals, expressed in Rand, shall be no less than the "contract amount" multiplied by a percentage (%) factor for the applicable class of construction works.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the "Contract Amount" as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the "Contract Amount", the number of beneficiaries to be trained from which *Method* and the actual cost for providing the training.

CPG Calculation

Table 2: Contracting skills development goals for different classes of engineering and construction works contracts

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 7)

Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004		Construction skills development goal (CSDG) (%)
Designation	Description	
CE	Civil Engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

"Contract amount" = Tender amount at the time of award excluding allowances and expenses, and VAT

Contractor CPG:

CPG calculation

"Contract amount" x factor from Table 3 above.

CPG calculation example:

"Tender Amount" = R150 Mil for GB, all inclusive of allowances and VAT

"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)

Factor for GB = 0,5% (as per Table 2 above)

CPG in R value = R130 Mil x 0,5% = R650 000 i.e. total notional cost of training to amount to R650 000

Calculation of penalty:

Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.2)

CPG value = R650 000

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Achieved = R550 000 = R100 000 Shortfall
Penalty = R100 000 x 30% = R30 000 Excl. VAT

Calculations based on “Contract Amount” after bid award and appointment of beneficiaries

Actual CPG training requirement value after award upon selecting method/s of training and appointment of beneficiaries = R676 000 (Table 4 below) and the provisional amount allowed for to be adjusted accordingly. The new monetary value of training required will then form the basis for determining penalties applicable. No penalties will be applied should the CPG value, based on the “Contract Amount” be achieved.

Table 4: Notional cost recalculation upon appointment of beneficiaries.

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 10)

Skills Types	Number of learners	Notional Cost / Learner / Quarter	Notional cost / learner / year	Total Notional Cost over 12 months Contract
Method 2: Workplace learning opportunities, with unemployed TVET graduates	2	R23 000	R92 000	R184 000
Method 3: Candidacy for an unemployed learner with a 3-year qualification	2	R61 500	R246 000	R492 000
Total	4			R676 000

Note: the required CPG will be recalculated based on the awarded Tender amount and “Contract Amount” once the beneficiaries have been appointed and actual costs are known

Note: The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI as published by Stats SA. The rates will be adjusted as an adjustment to the provisional amounts should the rates increase after bid award or during the construction period

1.6 National Youth Service Programme (NYS) CPG

When applicable, a separate NYS Bill of Quantities will be included in the tender documentation will indicate the number of beneficiaries to be trained.

Calculation of penalty:

Payment reduction per person not trained as stipulated in the NYS Bill of Quantities = R 2 500 per person.

Total number of NYS Beneficiaries as stipulated in the NYS Bill of Quantities = 25

Total Number of NYS beneficiaries trained = 20 (shortfall of 5 beneficiaries)

Penalty = 5 x R2 500 = R12 500 Excl. VAT

1.7 Labour Intensive Works CPG

When applicable, the work to be done by way of Labour intensive methods are specified in the Bills of Quantities with a “LI”.

CPG calculation example:

“Tender Amount” = R150 Mil all inclusive of allowances and VAT

“Contract Amount” = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)

CPG value = R10 Mil (Total value of labour-intensive works specified in the Bills of Quantities)

Calculation of penalty:

CPG value = R10 Mil

Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.2)

CPG Achieved = 9 Mil (R1 Mil shortfall)

Penalty = R1 Mil x 30% = R300 000 Excl. VAT

C3.1 Specification



DEPARTMENT OF PUBLIC WORKS

HIV/AIDS

SPECIFICATION FOR

CIVIL CONTRACTS

APRIL 2004

NOTES TO CONSULTANTS

Please include the following note to tenderers, Preliminary and General items and HIV/AIDS Specification with the attached schedules in the appropriate Sections in the Bill of Quantities.

NOTES TO TENDERERS

HIV/AIDS AWARENESS

These Bills of Quantities contain items relating to HIV/AIDS awareness. The items have been included under “Section 1: Preliminary and General” to enable tenderers to allow for the implementation of prescribed HIV/AIDS awareness specifications for the benefit of all workers under this Contract.

Tenderers must take note that compliance with the HIV/AIDS awareness programme is compulsory.

SECTION 1: PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	C
		HIV/AIDS AWARENESS					
1. ...		It is required of the Contractor to thoroughly study the HIV/AIDS Specification (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the Bills of Quantities. Provision for pricing of HIV/AIDS awareness is made under items 1. to 1. ... hereafter and it is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced hereunder, as the said items represent the only method of measurement and no additional items or extras to the contract in this regard shall be entertained The Contractor must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative/Agent, notwithstanding the provisions of Clause 52 of the General Conditions of Contract for Works of Civil Engineering Construction or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment					
1. ...		AWARENESS CHAMPION Selection, appointment, briefing and making available of an Awareness Champion including provision of all relevant services, all in accordance with the HIV/AIDS Specification	Sum				
1. ...		AWARENESS WORKSHOPS Selection and appointment of a competent Service Provider approved by the Representative/Agent, provision of a Service Provider Workshop Plan and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification	Sum				
1. ...		POSTERS, BOOKLETS, VIDEOS, ETC. Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the construction period, all in accordance with the HIV/AIDS Specification	Sum				
1. ...		ACCESS TO CONDOMS Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the construction period, all in accordance with the HIV/AIDS Specification	Sum				
1....		MONITORING Monitoring HIV/AIDS awareness of workers, providing the Representative/Agent with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the construction period and close out, all in accordance with the HIV/AIDS Specification	Sum				

SECTION

HIV/AIDS SPECIFICATION

HIV/AIDS REQUIREMENTS

1 SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers
- Informing Workers of their rights with regard to HIV/AIDS in the workplace
- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices

2 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

Service Provider: The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all

2.2 Abbreviations

HIV	:	Human Immunodeficiency Virus
AIDS	:	Acquired Immune Deficiency Syndrome
STI	:	Sexually Transmitted Infection

3 BASIC METHOD REQUIREMENT

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site
- When new Workers or Sub-contractors will join the construction project
- Duration of Workers and Sub-contractors on site

- How the maximum number of Workers can be targeted with workshops
- How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker
- Profile of Workers, including educational level, age and gender (if available)
- Preferred time of day or month to conduct workshops
- A Gantt chart reflecting the construction programme, for scheduling of workshops
- Suitable venues for workshops

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training

The Service Provider Workshop Plan shall address, but will not be limited to the following:

- 3.1 The nature of the disease;
- 3.2 How it is transmitted;
- 3.3 Safe sexual behaviour;
- 3.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- 3.5 Attitudes towards other people with HIV/AIDS;
- 3.6 Rights of the Worker in the workplace;
- 3.7 How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
- 3.8 How the Service Provider will support the Awareness Champion;
- 3.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- 3.10 How the workshops will be presented, including frequency and duration;
- 3.11 How the workshops will fit in with the construction programme;
- 3.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- 3.13 How the video will be used;
- 3.14 How the Service Provider will elicit maximum participation from the Workers;
- 3.15 A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

4 HIV/ AIDS AWARENESS EDUCATION AND TRAINING

4.1 Workshops

The Contractor shall ensure that all Workers attend the workshops

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops

4.2 Recommended practice

4.2.1 Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session

4.2.2 Service Providers

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works

4.2.3 HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met

4.2.3.1 UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

4.2.3.2 UNIT 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted

Assessment Criteria:

1. Record in what bodily fluids the HI virus can be found
2. Describe how HIV/AIDS can be transmitted
3. Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS

4.2.3.3 UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream

Assessment Criteria:

1. Report on how to minimise the risk of HIV/AIDS infection
2. Report on precautions that can be taken to prevent HIV/AIDS infection
3. Explain or demonstrate how to use a male and female condom
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission

4.2.3.4 UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling

Assessment Criteria:

1. Describe methods of testing for HIV/AIDS infection
2. Report on why voluntary testing is important
3. Report on why pre- and post-test counselling is important

4.2.3.5 UNIT 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS

Assessment Criteria

1. List and describe ways to manage HIV/AIDS
2. Describe nutritional needs of people living with HIV/AIDS
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS
4. Explain the need for counselling and support to people living with HIV/AIDS

4.2.3.6 UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people

Assessment Criteria

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS
4. Describe post exposure prophylactics

4.2.3.7 UNIT 7: The rights and responsibilities of Workers in the workplace with regard to HIV/AIDS

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way

Assessment Criteria:

1. Discuss the rights of a person living with HIV/AIDS in the workplace
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important

4.3 Displaying of plastic laminated posters and distribution of information booklets

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Public Works

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds

The posters on display must always be intact, clear and readable

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site

5 PROVIDING WORKERS WITH ACCESS TO CONDOMS

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site handover. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds

6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers

7 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner

The Awareness Champion shall be responsible for:

- 7.1 Liasing with the Service Provider on organising awareness workshops;
- 7.2 Filling condom dispensers and monitoring condom distribution;
- 7.3 Handing out information booklets;
- 7.4 Placing and maintaining posters

MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager, through the Representative/Agent

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

GARRISON FINANCE OFFICE

SPECIFICATION FOR CONTRACTORS

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1. INTRODUCTION

1.1 Occupation Health and Safety Specification Goal

Department Of Public Works is committed that the highest health and safety standards will prevail and that there will be a full commitment from all parties involved, achieving the best practices that is recognised internationally.

To achieve this goal our company has prepared and published this OHSS. It sets out guidelines and minimum levels of awareness and guidance for all health and safety requirements within the organisation. Responsibility for adhering to these requirements rests with contractors and in particular with all employees who are encouraged to be pro-active.

Our company is committed to ensuring the highest health and safety standards for all work to be undertaken.

Contractors as employers are fully responsible and accountable for the compliance with all health and safety requirements.

The OHSS has been prepared by our company for inclusion in all Tender and Contract Documents for building and construction work. The OHSS will be applicable to the development phases of the work. Revisions to the OHSS will comply with our company's Document Data Control Procedure.

The Employer's personnel will be responsible for the auditing of the implementation of the OHSS and the maintaining of the document control and record system associated with the OHSS.

1.2 Purpose of the Occupation Health and Safety Specification

The purpose of the OHSS is to incorporate the requirements of our company Record of Decision into a contractual Occupational Health and Safety Performance Specification, as well as to assist towards achieving compliance with the OHS Act in order to reduce accidents and injuries. The OHSS shall be applicable to all construction work and maintenance activities that our company has control over.

This will assist in ensuring that all the costs related to the compliance with the OHS Act, as well as the OHSS are taken into consideration at TENDER stage.

Department Of Public Works is fully committed to ensure that all contractors meet International Best Practices and to maintain an accident free work relation.

The OHSS is a performance specification to ensure that our company and any body that enter into formal agreement with our company viz. Consultants, Principal Contractors, Contractors, Tenants and Concessionaires achieve an acceptable level of OHS performance. No advice, approval of any document required by the OHSS such as hazard identification and risk assessment action plan or any other form of communication from our company shall be construed as an acceptance by our company of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Further, there is no acceptance of liability by our company, which may result from the Principal Contractor failing to comply with the OHSS unless our company issued an instruction to any requirement, i.e. the Principal Contractor remains responsible for achieving the required performance levels.

1.3 Implementation of the Occupation Health and Safety Specification

This OHSS forms integral part of the Contract, and Principal Contractors are required to make it an integral part of their Contracts with their Contractors and Suppliers. It will be disseminated by our company to persons responsible for the design of the infrastructure works, who will ensure that it is included in the Tender Document(s) issued to prospective Contractors. The prospective Contractors shall incorporate the requirements of the OHSS in their *Submission of tender* to our company. Some of the requirements of the OHSS are detailed in **Addendum A**.

The Principal Contractor shall sign **Department Of Public Works's** acknowledgement that he/she has familiarised him/herself with the content of the OHSS and that he shall comply with all his obligations in respect thereof.

2. STANDARD OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

2.1 SCOPE

This OHSS covers the requirements for the eliminating and mitigating accidents and injuries in all **Department Of Public Works** controlled projects within our company and where our company has control over any construction and maintenance activity.

This scope also addresses legal compliance, hazard identification and risk control, promoting a health and safety culture amongst those working on **Department Of Public Works** projects and those affected by the activities taking place in and around them.

Health and Safety is everyone's responsibility, report Unsafe Conditions and Unsafe Acts to your superior immediately.

2.2 INTERPRETATIONS

2.2.1 Application

The OHSS contains clauses that are generally applicable to construction/building work and to impose pro-active controls associated with activities that impact on human health and safety as it relates to plant and machinery.

Compliance to the requirements of the OHS Act and the MHS Act is in addition to the requirements of the OHSS and is part of the Principal Contractor's responsibility. Our company will monitor that the Principal Contractor complies with the requirements of the OHS Act and the MHS Act and will not prescribe to the Principal Contractor how such compliance is achieved.

In these Specifications where reference is made to the male gender it shall include the female gender and visa verse.

2.2.2 Definitions

For the purpose of the OHSS the definitions, given hereunder shall apply:

Construction/Building Work (as defined by the OHS Act: Construction Regulations, 2014
Means any work in connection with –

- a) the erection, maintenance, alteration, renovations, repair, demolition or dismantling of or addition to a building or any similar structure;
- b) the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
- d) the moving of earth, cleaning of land, the making of a excavation, pilling, or any similar type of work;

Designer

Means any person who: -

Prepares a design;

Who checks and approves a design;

Who arranges for any person at work under his control (including an employee of his, where he is the employer) to prepare a design, as well as an architect or engineer contributing to, or having overall responsibility for the design;

Building services engineer designing details for fixed plant;

Surveyor specifying articles or drawing up specifications;

Contractor carrying out design work as part of a design and build project;

Temporary works engineer designing formwork and false work; and

Interior designer, shop-fitter and landscape architect;

Site

Means the area under the control of the Principal Contractor for the executing of the work. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Principal Contractor, and is approved for such use by the Engineer/Agent/Environmental Control Consultant.

The Act

Means, unless the context indicates otherwise, The Occupational Health and Safety Act, Act 85 of 1993.

Hazard

Means a source of or exposure to danger (source which may cause injury or damage to persons, or property)

Risk

Means the probability or likelihood that a hazard can result in an injury or damage

Hazard Identification and Risk Assessment and Risk Control (HIRA)

Means a documented plan, which identifies hazards, assesses the risk and detailing the control measures and safe working procedures, which are to be used to mitigate and control the occurrence of hazards and risks during construction and operating phases.

Designer's risk assessment

Means a program to determine any risk associated with any hazard of the construction work to be executed, in order to identify the steps needed to be taken to remove, reduce or control such hazard and any information which might affect the health and safety of any person carrying out construction work.

Principal Contractor's Responsible Person

The designated person as contemplated in Section 16.2 of the OHS Act who acts subjected to the direction and control of the CEO. The appointment shall be as required by the OHS Act which shall stipulate health and safety responsibilities.

Construction Supervisor

Means a competent person appointed in writing by the Principal Contractor in terms of Construction Regulation 6(1) to supervise construction or building work.

Principal Contractor's Personnel

Means any person on the site that is under the control of the Principal Contractor. Whether that person is permanent or temporary employed.

Client

Means any person for whom construction work is performed

Agent

Means any person who acts as a representative for a client; **Department Of Public Works**
Representative: - Project Manager or Consultant or Resource Co-ordinator or Service Manager.

Health and Safety comes first.
"Healthy and Safe workers are happy workers"
Obey all Health and Safety Rules and requirements.

2.3 GENERAL HEALTH AND SAFETY PROVISIONS

2.3.1 Copy of the Act.

The Principal Contractor shall ensure that copy the OHS Act and the relevant regulations are available on site in terms of GAR 4 and where applicable the MHS Act

2.3.2 By-laws

The designer shall take cognisance of the By-Laws of the relevant local authority.

2.3.3 Notification of Intention to Commence With Construction Work.

The Principal Contractor shall ensure that the Provincial Director is notified interims of Construction Regulation 3

- a) before carrying out construction work, notify the Provincial Director in writing of the construction work if it includes-
 - (i) the demolition of a structure exceeding a height of 3 meters; or
 - (ii) the use of explosives to perform construction work; or
 - (iii) the dismantling of fixed plant at a height grater than 3m
- (b) before carrying out that construction work, notify the Provincial Director in writing when the construction work-
 - (i) Exceeds 30 days or will involve more than 300 person days of construction work; and
 - (ii) Includes excavation work deeper than 1 meter; or

- (iii) Includes working at a height greater than 3 meters above ground or landing.

2.3.4 Safety Plan

The Principal Contractor shall compile and demonstrate to **Department Of Public Works** a safety plan that is based on this OHSS as contemplated in CR 7(1). The safety plan shall be negotiated and approved by the client or agent.

The Principal contractor shall ensure that the safety plan is implemented and maintained from the date of commencement and for the duration of the construction work.

2.3.5 Site Safety File.

The Principal Contractor shall compile a comprehensive safety file as contemplated in CR 7 (7) and (8).

Safety file Index is sent separately

The safety file shall be kept on site at all times.

Construction work shall be stopped if the safety file is not available on request.

2.3.6 Assignment Responsible Person to Supervise Health and Safety on Site

The Principal Contractor shall submit supervisory appointments as well as any relevant appointment in writing, as stipulated by the OHS Act, or the MHS Act prior to commencement of work.

The Principal Contractor's Responsible Person shall inform the client where and when any appointment that was made has changed.

Addendum B.

2.3.7 Competency for Principal Contractor's Responsible Persons

The Principal Contractor shall ensure that his responsible person shall be competent in health and safety prior to commencement of activities on site. The Principal Contractor shall submit proof of competency to the client.

2.3.8 Compensation for Occupational Injuries and Diseases.

The Principal Contractor shall submit a valid copy of his Letter of Good Standing with the Compensation Commissioner or proof of a Compensation Insurer to **Department Of Public Works**, within 3 working days from receipt of the Letter of Acceptance from **Department Of Public Works**.

2.3.9 Unemployment Insurance Fund

The Principal Contractor shall submit proof of registration with the UIF

2.3.10 South Africa Revenue Service Registration

The Principal Contractor shall submit proof of registration with SARS

2.3.11 Occupational Health and Safety Policy.

The Principal Contractor shall submit a Health and Safety Policy signed by the Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented by the Company / Principal Contractor.

2.3.12 Health and Safety Organogram

The Principal Contractor shall submit an organ gram, outlining the Site Health and Safety Team as required and as related to the relevant appointments by the OHS Act case where appointments have not been made, the organ gram shall reflect the position. The organogram shall be updated, when there is a change in the site team.

The principal Contractor shall notify the client of such changes.

2.3.13 Preliminary Hazard Identification and Risk Assessment

The Principal Contractor shall cause a Hazard identification to be performed from the scope of work, by a competent person before commencement of construction work, and the assessed risks shall form part of the health and safety plan applied on sites. A copy of the HIRA must be submitted to **Department Of Public Works** for approval.

The HIRA shall include the following: -

- (a) the anticipated risks and hazards as identified by the designer which could not be designed out.
- (b) the identification of the risks and hazards as anticipated in the SOW to which persons may be exposed to, that will effect their health and safety;
- (c) the analysis and evaluation of the hazards identified;
- (d) a documented plan and safe working procedures to mitigate, reduce or control the risks identified; and
- (e) The monitoring and review plan of the identified risks and hazards.
- (f) The relevant PPE or clothing.

The Principal Contractor shall ensure that all contractors under his control are informed, and trained by a competent person regarding any hazard and related work procedures before any work commences and thereafter at intervals as circumstances dictates or as determined by **Department Of Public Works**.

Preventative measures must first address the elimination of the hazard or risk. Should PPE be required to reduce the risk, equipment or clothing that must be used should be SANS approved.

The HIRA process is ongoing and a review shall be submitted at intervals determined by **Department Of Public Works**. The Health and Safety Representative(s), the Health and Safety Committee Member(s), a representative group of employees and Contractors Representative shall be members of the HIRA Team and will ensure that all the identified hazards and risks are appropriately controlled and reviewed.

The Principal Contractor shall be responsible to make sure that all employees and contractors under his control are conversant with the content of the HIRA and what appropriate measures have been put in place to either eliminate or reduce the identified risk.

The Principal Contractor shall outline to employees and contractors what role they are expected to ply in the HIRA and control measure process.

2.3.14 Health and Safety Representative(s)

The Principal Contractor shall ensure that Health and Safety Representative(s) are elected and trained to carry out their functions.

The appointment shall be in writing.

The Health and Safety Representative shall carry out monthly inspection; submit his report to the supervisor to take appropriate action.

He / she shall attend monthly Health and Safety Committee Meetings.

2.3.15 Health and Safety Committee

The Principal Contractor shall ensure that monthly Health and Safety Meetings are held and that minutes are kept on record.

Meetings must be organised and chaired by the Principal Contractor Responsible Person.

The Principal Contractor shall ensure that the SHE Specialist / Consultant is invited to attend the meeting as observer.

The Health and Safety Representative's monthly inspection report must be discussed at the meeting.

All accidents, unsafe conditions and unsafe acts must be discussed at the meeting.

The Principal Contractor shall forward a copy of the minutes to **Department Of Public Works** Project Manager / Agent; the minutes shall be placed in the site safety file.

2.3.16 Health and Safety Training

The Principal Contractor shall conduct a training needs analysis as frequently as deemed necessary to ascertain what Health and Safety training is required.

2.3.16.1 Induction Training

The Principal Contractor shall keep a copy of the attendance register of all his employees who attended the induction. In addition to our company's *Induction programme*, the Principal Contractor must develop job or project specific induction training.

2.3.16.2 Awareness

The Principal Contractor shall conduct, on site, weekly toolbox talks and before hazardous work take place.

The talks shall cover the relevant activities and an attendance register must be kept and sign by all attendees.

A record of the topic and the content of the safety talks shall be kept in the site health and safety file as evidence of training.

2.3.16.3 Competency

After the Principal Contractor has identified the training to be conducted, based on the HIRA, he shall send the relevant persons on appropriate courses and keep certificates of training for reference.

2.3.17 General Record Keeping

The Principal Contractor shall keep and maintain records of all personnel and visitors to the site.

The Principal Contractor shall keep copies of the Identification Documents of all the employees on site.

The Principal Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the OHSS, the OHS Act..

The Principal Contractor shall ensure that all records of accidents, spot fines, training, notice from the Department of Labour, and the Department of Minerals and Energy etc. is kept on site.

All documents shall be available for inspection by **Department Of Public Works** or the Department of Labour.

2.3.18 General Inspections, Monitoring and Reporting

The Principal Contractor shall carry out daily inspections and investigate all incidents and report to **Department Of Public Works** as required by **Addendum C**. The Principal Contractor shall be required keeping records of all inspections and investigations, which were undertaken, and any other inspections and investigations by person(s) authorised to do so.

2.3.19 Internal Audits

The Principal Contractor's Responsible Person shall conduct monthly health and safety audits to ensure compliance with the OHSS and OHS Act. Records of audits must be kept and non-conformances reported, investigated and corrective action must be taken to prevent re-occurrence.

2.3.20 External Audits

Department Of Public Works dedicated personnel (auditor) shall conduct at least monthly health and safety audits to ensure compliances with the OHSS and any relevant Health and Safety legislation (OHS Act). All documentation held by the Principal Contractor shall be available for inspection. The Principal Contractor shall provide any additional information as requested. The auditor shall verify the results with the Principal Contractor being audited.

2.3.21 Emergency Procedures

Where the principal contractor work in a building where **Department Of Public Works** has control over and there is existing emergency procedures in place, the principal contractor shall ensure that all persons under his control are conversant with these procedures.

The Principal Contractor shall submit a detailed Emergency Procedure for the approval by **Department Of Public Works** prior to commencement on site. The procedure shall detail the response plan including the following key personnel:

- ❖ List of key personnel,
- ❖ Details of emergency services,
- ❖ Actions or steps to be taken in the event of the emergency, and
- ❖ Information on hazardous material / situation, including each material's / hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, etc. The Principal Contractor shall advise **Department Of Public Works** in writing of any site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance Service, Police, Medical and Hospital, etc.) must be available to site personnel.

2.3.22 First Aid Box and First Aid Equipment

The Principal Contractor shall appoint in writing a First Aider(s). The appointed First Aider(s) shall be in position of a valid certificate issued by a company approved by the Chief Inspector, before starting on the site. Valid certificates are to be kept on site.

The Principal Contractor shall provide an on site First Aid Box that comply with the requirements of General Safety Regulation 3 of the OHS Act, that is adequately stocked at all

times, and ensure that the First Aid Box is accessible and fully controlled by a qualified First Aider.

In addition the Principal Contractor shall have a stretcher on site to be used in case of a serious accident.

2.3.23 Accident Reporting and Investigation

The Principal Contractor shall ensure that all Section 24 and Section 25 incidents are reported to the Inspector of The Department of Labour, the Department of Minerals and Energy and to **Department Of Public Works**.

The Principal Contractor shall insure that W.CL 2 Employer's Report of an Accident forms are available on site and shall accompanied the injured employee to the Medical Practitioner/Hospital.

The Principal Contractor shall insure that all incidents are recorded in the Site Incident Book.

The Principal Contractor shall in addition to the requirements of the OHS Act and the MHS Act, investigate, record and report all reportable incidents as per **Department Of Public Works** Incident Reporting and Investigation Procedure.

The Investigation shall be conducted by a competent person who has sufficient knowledge to carry out an investigation.

2.3.24 Hazard and Potential Situations

The Principal Contractor shall immediately notify other Contractors after he has been notified of any hazardous or potentially hazardous situations, which may arise during performing of an activity or task.

2.3.25 Personal Protective Equipment (PPE) and clothing

The Principal Contractor shall carry out PPE or clothing needs analysis to determine the necessary PPE or clothing as determined by the HIRA, or clothing to be used during construction.

The Principal Contractor shall ensure that all workers are issued with the required PPE. The Principal Contractor shall ensure that workers are at all times identifiable, the companies name shall be embroiled or printed on the front or back of the overall or overall jacketed.

The Principal Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- ❖ Lost or stolen
- ❖ Worn out or damaged.

2.3.26 Occupational Health and Safety Signage

The Principal Contractor shall at all entrances to the site posted warning signs to warn employees and visitors against the hazards on site. Signage shall include, but not limited to:

- ❖ Unauthorised entrance prohibited notification;
- ❖ Signage to indicate what PPE must be wear on site as per HIRA; and
- ❖ Job related warning signs.

The Principal Contractor shall be responsible to maintain the quality and replacement of signage.

2.3.27 Contractors

The Principal Contractor shall ensure that the same relation that is in place between **Department Of Public Works** and the Principal Contractor is in place between him and his contractors.

The Principal Contractor shall ensure that all contractors under his control are appointed in writing as per requirement of Construction Regulation 5.

2.3.28 Incentives

Department Of Public Works's dedicated personnel shall identify a Principal Contractor that performed best in implementing their safety plan and compliance with the OHS Act and may make an award to or acknowledge that Principal Contractor or contractors.

2.4 OCCUPATIONAL SAFETY

2.4.1 Demolition Work

Prior to any demolition work being carried out, the Principal Contractor shall submit a Method Statement for approval by **Department Of Public Works**; acceptance will then be issued to the Principal Contractor to proceed with the demolition work. The Principal Contractor shall ensure that demolition work complies with Construction Regulation 12.

2.4.2 Excavation, Shoring, Dewatering or Drainage

The Principal Contractor shall ensure that when excavation work is deeper than 1m that the Provincial Director be notified on Annexure A in terms of Construction Regulations 3 (b)(ii).

The Principal Contractor shall make provision in his / her tender for shoring, dewatering or drainage of any excavation unless otherwise stipulated elsewhere in the contracts.

The Principal Contractor shall ensure that all excavation work under his / her control comply with the requirements of Construction Regulation 11.

If the excavation is more than 1,5m long and 1m deep a safe working procedure shall be submitted to **Department Of Public Works** for approval. A permit will be issued to the Principal Contractor to proceed with the excavation work.

The Principal Contractor shall ensure that:

- a) The excavations are inspected before the shift starts and record is kept;
- b) There is no unguarded excavation regardless of depth;
- c) The safe working procedure has been communicated to the workers; and
- d) The safe working procedures is enforced and maintained by the Principal Contractors Responsible Person at all times.

2.4.3 Explosives and Blasting

Where explosives will be used in a workplace to conduct any work, the principal contractor shall apply in writing to the Chief Inspector of Occupational Health and Safety for written approval.

The Principal Contractor shall ensure that the use of explosives and blasting (where required) be undertaken by a specialist contractor with proven track record in the type of work to be performed. A method statement / safe work procedure shall be submitted to **Department Of Public Works** for approval before commencement of work.

2.4.4 Piling

The Principal Contractor shall ensure that piling, (where required) is undertaken by a specialist contractor with proven record in the type of work to be performed. A method statement / safe

work procedure shall be submitted to **Department Of Public Works** for approval before commencement of work.

2.4.5 Stacking of Material

The Principal Contractor shall ensure that there is appointed stacking supervisor and all materials, formwork and all equipment are stacked and stored appropriately. The Principal Contractor shall take account of the requirements of GSR 8(1) to (5)

Good Housekeeping means a place for everything and everything in its place.

2.4.6 Speed Restriction and Protection

The Principal Contractor shall ensure that all persons under his control and all those that are visiting the site are aware of the site speed restriction(s). On site gravel or earth roads and within 500m of the site, the vehicles of the Principal Contractor and his/her suppliers shall be regulated as directed by notices and signs.

2.4.7 Hazardous Chemical Substances (HCS)

The Principal Contractor shall provide the necessary training and information regarding the use and storage of HCS. The Principal Contractor shall ensure that the use and storage of HCS is carried out as prescribed by the HCS Regulations. The Principal Contractor shall ensure that all HCS brought to site have MSDS's, and MSDS's shall be available on site.

All users are made aware of the Occupational Hazards and precautions that need to be taken when using the chemical.

The First Aider must be made aware of how to treat HCS incidents appropriately and in accordance with the MSDS.

2.4.8 Asbestos

The Principal Contractor shall ensure that all asbestos work is done as prescribed by the Asbestos Regulations, 2002. The Principal Contractor shall submit an Asbestos Certificate from the Department of Labour, which refer to the prescribed requirements. The Principal Contractor shall notify the Client if there are any asbestos materials to be used on site.

2.5 PLANT AND MACHINERY

2.5.1 Construction Plant

"Construction Plant" encompasses all types of plant but not limited to, cranes, piling frames, boring machines and excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

The Principal Contractor shall ensure that all such plant complies with the requirements of the OHS Act and where applicable, to the Road Traffic Act.

The Principal Contractor shall inspect and keep records of inspections of the tools and equipment used on site.

Machinery shall only be used by authorised persons and under proper supervision. The scope of authority of the operator must be clearly defined.

Appropriate PPE and clothing as specified by the HIRA, shall be provided and maintained in a good condition at all times.

2.5.2 Vessels under Pressure / Gas Bottles and Operations

The Principal Contractor shall comply with the Vessels under Pressure Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Providing and maintain appropriate signage in areas where VUP are used;
- Regular statutory inspections and servicing is carried out and all the records of inspections are kept available on site.
- Provide and maintain appropriate fire fighting equipment as determined by the fire risk assessment.

2.5.3 Fire Extinguishers and Fire Fighting Equipment

The Principal Contractor shall ensure that regular fire risk assessments be done as the work progress.

The Principal Contractor shall provide adequate fire extinguishers that addresses the identified fire risk.

These extinguishers shall be located at strategic points on the site. The Principal Contractor shall keep spare serviced portable extinguishers available on site.

Safety signs shall be posted in all areas where fire extinguishers are located.

The Principal Contractor shall have adequate persons trained, or competent to use the Fire Fighting equipment.

2.5.4 Hired Plant and Machinery

The Principal Contractor shall ensure that any plant and machinery brought to site is safe to use. The necessary requirements as stipulated by the OHS Act as well as those that are stipulated by this OHSS, shall apply. The Principal Contractor shall ensure that operators hired with machinery undergo **Department Of Public Works** health and safety induction, appropriate tool box talks and be issued with the necessary PPE or clothing.

2.5.5 Scaffolding / Working on Heights Including Roof Work

Working at heights includes any work, which is 2 meters or above ground level the Principal Contractor shall: -

- ❖ ensure that a detailed HIRA has been undertaken and submitted for approval to **Department Of Public Works** before commencement on site.
- ❖ appoint a trained scaffold inspector and competent scaffold erector to control the safety of the scaffolding at all times.
- ❖ ensure that all scaffolding and freestanding scaffolding, complies with the requirements of the Construction Regulations and SANS 10085-1: 2004

2.5.6 Formwork for Structures

The Principal Contractor shall ensure that, after formwork has been erected the Client or his Agent is notified to check the formwork and that a permit has been issued before loads are applied. Notwithstanding issuing a permit, the principal contractor shall be entirely responsible for the safety and adequacy of the formwork.

2.5.7 Lifting Machine and Lifting Tackle

The Principal Contractor shall ensure that a competent person inspects lifting machinery and lifting tackle before use and monthly taking into account that;

- All lifting equipment and lifting tackle have a maximum permissible workload clearly indicated.
- Regular statutory inspections and servicing is carried out.
- Records are kept of inspections and of service certificates

- There is proper supervision in terms of guiding the loads, which includes a trained banks man to direct and check lifting, tackle if it is safe for use.

2.5.8 Ladders and Ladder Work

The Principal Contractor shall ensure that all ladders used are in a robust condition, uniquely numbered and inspected at least monthly. Record of all inspections shall be kept in the safety file.

2.5.9 General Machinery

The Principal Contractor shall comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those persons using machinery, and enforce compliance.

2.5.10 Portable Electrical Tools

The Principal Contractor shall ensure that use and storage of all portable electrical tools are in compliance with relevant legislation. The Principal Contractor shall consider that:

- A competent person appointed in righting undertakes routine inspections;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Awareness training is carried out and compliance is enforced at all times;
- PPE and clothing is provided and maintained.

2.5.11 Explosive Powered Tools

The Principal Contractor shall ensure that use and storage of all explosive powered tools are in compliance with relevant legislation. The Principal Contractor shall consider that:

- Only cartridges suited for the explosive powered tool and work to be performed are used.
- A explosive powered tool is cleaned and examined daily before use and as often as may be necessary for its safe operation by a competent appointed person;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Warning signs are posted at all entrances to the area where the tools is been used.
- Issuing and collection of cartridges and nails or studs are controlled and recorded in a register and that recipient has accordingly signed for receipt as well as returning spent and unspent cartridges.
- Awareness training is carried out and compliance is enforced at all times;
- PPE and clothing is provided and maintained.

2.5.12 High Voltage Electrical Equipment

The Principal Contractor shall ensure that, where work is under, on or near high-voltage electrical equipment on or in close of proximity to **Department Of Public Works** property, which is not maintained and/or operated by **Department Of Public Works** the Electrical Regulations, instructions issued by the Employers personnel, together with safety instructions (Regulations of the Owner of the Equipment) are complied with.

Such equipment includes: -

- ❖ ESKOM and Local Authority equipment;
- ❖ The Principal Contractor's own power supply; and

- ❖ Electrical equipment being installed but not yet taken over from the Principal Contractor by **Department Of Public Works**.

2.5.13 Public Health and Safety

The Principal Contractor shall ensure that each person working on or visiting a site, and the surrounding community, shall be made aware of the dangers likely to arise from on site activities and the precautions to be observed to avoid or minimise those dangers. Appropriate Health and Safety signage shall be posted at all times.

Both **Department Of Public Works** and the Principal Contractor have a duty in terms of The OHS Act, to do all that is reasonably practicable to prevent members of the public, and others being affected by the construction processes, to be aware, and put preventative measures in place. The public and visitors shall go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks.

Where there are specific rules or inherent hazards that are applicable to the site the client or his agent shall ensure that the principal contractor is informed. The principal contractor shall take all reasonable practicable steps to ensure compliance.

2.5.14 Night Work

The Principal Contractor shall not undertake night work without prior arrangement and a written permit from the client or his agent.

The Principal Contractor shall ensure that adequate lighting is provided for all night work and failure to do so shall result in work being stopped.

2.5.15 Facilities for Safekeeping and Eating Area for Workers

The Principal Contractor shall provide and maintain facilities for safekeeping, e.g. lockers etc. Where reasonably practicable a temporary structure to serve as a mess room or eating area shall be provided.

The weather conditions might be unsuitable for workers to be exposed to e.g. in rainy season. In terms of The OHS Act, employers have to provide employees with facilities for safekeeping and eating.

2.5.16 Facilities

The principal contractor shall provide and maintain facilities as contemplated in the Facilities Regulations for Workplaces and the Construction Regulations.

2.5.17 Transport of Workers

The Principal Contractor shall comply with the National Road Transport Regulations, 2000. The Principal Contractor shall, and not be limited to:

- ❖ Not transporting persons together with equipment, goods or tools unless the equipment, goods or tools are properly secured and stored in an appropriate area or section.
- ❖ Not transporting persons in a non-enclosed (top) vehicle, e.g. truck, there must be a proper canopy (properly covering the back and top) with suitable sitting area. Workers shall not be permitted to stand or sit on the edge of the transporting vehicle.
- ❖ Not transporting workers in bakkies.
- ❖ Provision of a portable fire extinguisher at all times.

It is vital that all those exposed to the hazards or risks are made aware of the risk, what control measures have been put in place to prevent the occurrence of accidents.

2.6 OCCUPATIONAL HEALTH

The Principal Contractor shall comply with the requirements of The OHS Act and Regulations and the MHS Act and Regulations where employees are exposed to Asbestos; Noise; Extreme Temperatures; HCS; Lead and Working from Heights. Proof of compliance shall be provided to the client or his agent before commencement of work on site.

2.7 ENVIRONMENTAL

The principal contractor shall take the necessary steps to ensure that the activities on the site are conducted within the framework of the EIA done for the site.

3. REFERENCES

3.1 Abbreviations and Acronyms

Abbreviation, Acronym	Meaning
OHSS	Occupation Health and Safety Specification for Construction
OHS Act	Occupation Health and Safety Act. Act 85 of 1993
OHS	Occupation Health and Safety
CR	Construction Regulation 2003
GAR	General Administration Regulation
GSR	General Safety Regulation
GMR	General Machinery Regulation
HCS	Hazardous Chemical Substances
HIRA	Hazard Identification and Risk Assessment
EIA	Environmental Impact Assessment.
SANS	South Africa National Standards
MHS Act	Mine Health and Safety Act

4. Addendum A

The Principal Contractor shall submit Addendum A with the Tender Document.

OHSS ITEM No	OHSS REQUIREMENT	OHS Act REQUIREMENT	SUBMISSION DATE.
2.3.1	Copy of the Act available on site.	G A R 4	Commencement of work or where > 5 persons employed
2.3.2	Safety Plan	CR 7(1)	Before commencement of work
2.3.3	Safety File	CR 7(7)	Commencement of work
2.3.4	Notification of Construction Work	Construction Regulations Complete ANNEXURE A	Before commencement of work
2.3.5	Assignment of person responsible for Health and Safety on site. Assignment of Responsible Person to Supervise Construction Work.	All relevant appointments as required by The OHS Act	Before commencement of work
2.3.6	Competencies of Responsible Person	Our Requirement	Before commencement of work
2.3.7	Letter of Good Standing	Construction Regulations	Before commencement of work
2.3.8	Registration with UIF	Unemployment Act, Act 63 of 2001	Commencement of work
2.3.9	Registration with SARS		Commencement of work
2.3.10	Occupational Health and Safety Policy	Section 7	At tender stage
2.3.11	Health and Safety Organ-gram.	Our Requirement	Before commencement of work
2.3.12	Hazard Identification and Risk Assessment (HIRA)	Construction Regulation 9	With tender document or within 10 days of receipt of letter acceptance from Department Of Public Works . As the construction work progresses
2.3.13	Health and Safety Representative	Section 17	Submit as soon as there are more than 20 employees on site

Comments:

5. Addendum B

Assignment of Principal Contractor's Responsible Persons

The Principal Contractor shall make the following appointments but not limited to:

APPOINTMENT	OHS Act REFERENCE	REQUIREMENT
CEO Dedication of duties	Section 16(2)	A competent person to assist with the on site Health and Safety overall responsibility Principal Contractor's Responsible Person.
Health and Safety Rep.	Section 17	An employee, nominated by fellow employees, and appointed in writing by the Principal Contractor, a full time employee to inspect the workplace in terms of health and safety of persons at work and in reference to plant and machinery.
Health and Safety Committee Member(s)	Section 19	All appointed H&S Rep(s) and competent persons representing the Principal Contractor to assist with on site Health and Safety matters.
Incident Investigator	GAR 8	A competent person to investigate incidents / accidents and could be: <ul style="list-style-type: none"> ❖ The Principal Contractor ❖ Health and Safety Representative ❖ Designated Person ❖ Member of the Health and Safety Committee.
Construction Work Supervisor	CR 8 (1)	A competent person to daily supervise and be responsible for health and safety related issues on site. The person is appointed to assist the CEO with his / her overall health and safety duties.
Subordinate Construction Work Supervisor	CR 8(2)	A competent person to assist with daily supervision and be responsible for health and safety related issues on site. The person is appointed to assist the Construction Work Supervisor.
First Aider	GSR 3	A qualified person to address all on site first aid cases.
Competent Person: Machinery	GMR 2	A Competent Person to supervise machinery.
Scaffolding Erector	CR 16(2)	A Competent Person to supervise scaffolding operations.
Scaffolding Inspector	CR 16(2)	A Competent Person to inspect scaffolding: <ul style="list-style-type: none"> ❖ Before use ❖ Weekly ❖ After accidental damage ❖ After alterations ❖ After inclement weather ❖ Before dismantling All inspections and deviations shall be recorded in a register.
Excavation Inspector	CR 13(1)	A Competent Person to inspect excavation work and check if approved working procedures are followed at all times.
Demolition Inspector	CR 14(1)	A Competent Person to inspect demolition work and check if approved working procedures are followed at all times.
Explosive Powered Tool Inspector	CR 21(2) (b)	A competent person to clean and examined Explosive Powered Tool daily before use.
Explosive Powered Tool nail and cartridge controller	CR 21(2) (d)	A competent person to control the issuing and collecting of nail and cartridge in writing.
Ladder Inspector	GSR 13 (A)	A competent person to inspect ladders daily and ensure they are safe for use, keeping monthly record of the inspections.
Welding, Flame cutting, Soldering and similar operations: Inspector	GSR 9(1)(a)	Operators of equipment are competent.

6 Addendum C

The Principal Contractor shall comply and not limited to the following requirements:

WHAT	WHEN	OUTPUT	REFERENCE INFORMATION
Induction and Awareness Training (Tool Box Talks)	Before entering the site. Weekly & before hazardous work is carried out.	Attendance Register	Principal contractor/Department Of Public Works Specifications induction course.
Health and Safety Committee Meetings	Monthly or agreed between parties.	Minutes signed by the 8.1 Covering: 1. Health and Safety Rep. Checklist 2. Accident investigation report 3. Fall Protection Plan 4. Rescue plan 5. HIRA	
Health and Safety Rep. Reports	Monthly or agreed between parties.	Reports signed by the 8.1 Report covering: 1. Accident investigation 2. Non conformances 3. Health and Safety Training 4. HIRA Updates 5. Internal & External Audits	Incident reporting and investigation for Department Of Public Works and Principal Contractor form.
General Inspections	As per OHSS and OHS Act	Report on OHSS and OHS Act compliance: ❖ Scaffolding ❖ Explosive Powered Tools ❖ Electrical Installations On Site ❖ Lifting Machinery And Tackle ❖ Excavations ❖ Demolition work ❖ Fire Fighting Equipment ❖ Portable Electrical Equipment ❖ Ladders	
Record Keeping	Ongoing	❖ Notices by DoL/DME ❖ Induction Training ❖ Visitors record book ❖ Minutes of OHS meetings ❖ General Complaints ❖ Fines ❖ General Incidents ❖ Annexure 2 Recording of Incident ❖ MSDS ❖ Medical Surveillance ❖ Inspection Register	
Work Permits	Before	As stipulated by the OHSS and	

	Commencement with certain activities	the OHS Act/MHS Act and relevant Regulations.	
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Department Of Public Works Tswhane

Addendum D

CHECK LIST

	Y	N	NA		Y	N	NA
1. OH&S Policy				2. 37(2) Agreement			
3. Notification of Construction Work to DoL				4. Letter of Good Standing			
5. Proof of PAYE Registration				6. Proof of UIF Registration			
7. Client' Health & Safety Specifications							
(a) 16(2) Person to ensure compliance with OHS Act				(b) CR 5.1(k) Principal Contractor			
(c) CR 4(5) Agent				(d) GSR 3 First Aider			
(e) CR 5(3)(b) Contractor (Labour Only)				(f) CR 8(1) Manager			
(g) CR 8(2) Assistant Construction Supervisor				(h) CR 8(6) Site Safety Officer			
(i) CR 9(1) Risk Assessor				(j) CR 10 Fall Protection Planer			
(k) CR 13 Excavation Inspector				(l) DMR 18 Lifting Equipment Inspector			
(m) CR 21 Explosive Powered Tools				(n) CR 14 Demolition inspector			
(o) CR 24(e) Temporary Electrical Installations Inspector				(p) CR 26(a) Stacking and Storage Supervisor			
(q) CR 23(j) Vehicles and Mobile Plant Inspector				(r) EMR 9 Portable Electrical Equipment Inspector			
10. Site Visitors Register				11. Client Medicals			
12. Safety Talks				13. Risk Assessment			
14. RELEVANT PLANS							
(a) Site Safety Plan				(b) Fall Protection Plan			
(c) Rescue Plan				(d) Blasting Plan			
(e)				(e)			
15. Personal Protective Equipment				16. Site Safety Rules			
17. Induction Training				18. HCS & MSDS's			
19. Incident Management				20. Emergency Preparedness			
21. Permit to Work				22. Construction Program			
23. REGISTERS							
(a) Contents of first aid Box				(b) Portable Electric Tools			
(c) Ladders				(d) Hand Tools			
(e) Scaffolding and Form Work Copy of SANS 10085-1:2004				(f) Explosive Powered Tools			
(h) Excavations				(i) Blasting			
(i) Personal Protective Equipment				(j) Lifting Equipment			

24. Copy of the Act, Act 85 of 1993				25. Copy of Act 29 of 1996			
26. Drawing Register				27. Drawings			
28. As Build Drawings				29. Data Packs			
30. Site Daily Diary				31. List of Contractors (List of employees)			
Comments:							

6. ACKNOWLEDGEMENT:

I, Francois representing FK Civils (the Principal Contractor) have satisfied myself with the content of this Occupational Health and Safety Specification (OHSS) and shall ensure that I and all my personnel and contractors under my control comply with all relevant obligations in respect hereof.

Signature: Principal Contractor

Date

Signature: Client Representative

Date

Part C4: Site Information

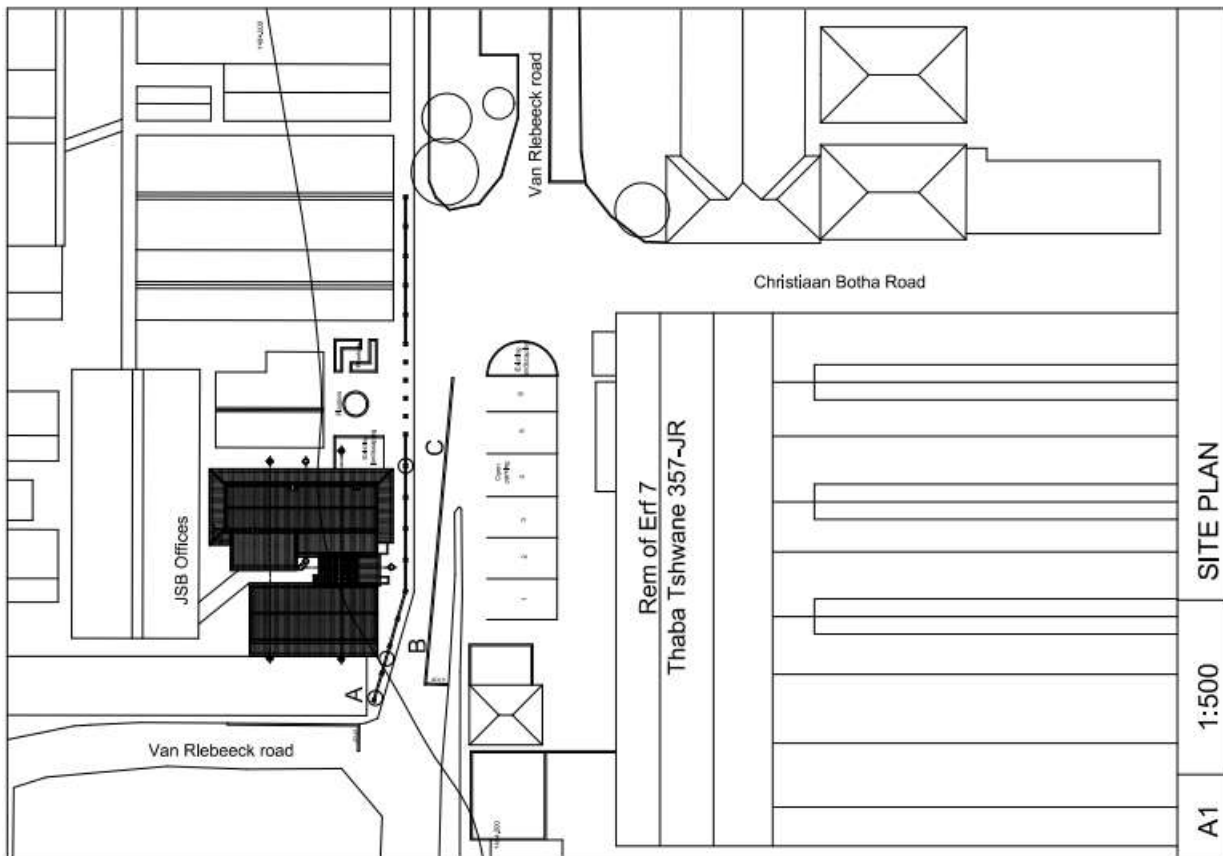
C4 Site Information

PG-03.2 (EC) SITE INFORMATION – JBCC 2000 PRINCIPAL BUILDING AGREEMENT (EDITION 6.2 OF MAY 2018)

Project title:	<i>Department of Defence: Joint Support Base Garrison Finance Office: Repair and Refurbishment of the Finance Office.</i>			
Tender no:	PT24/019	WCS no:	052557	Reference no:

C4 Site Information

The site for the proposed works is located at Joint Support Base Garrison, Thaba Tshwane Military Base, Centurion, Pretoria, Gauteng Province. REM of ERF 7 Thaba Tshwane 357-JR. The works will be taking place on the live site.



SPECIFICATIONS

ARCHITECTURAL SPECIFICATIONS

			MAINTENANCE AREA																												
			A1 WAITING	A2 CASHIER	A3 CASHIER	A4 CASHIER	A5 CASHIER	A6 CASHIER	A7 CASHIER	A8 PARAPLEGIC TOILET	A9 CHECKING/FRAUD	A10 KITCHEN	A11 PASSAGE	A12 MEETING ROOM	A13 ADMIN OFFICE	A14 SECURITY CONTROL	A15 SUPERVISOR	A16 PASSAGE	A17 MALE	A18 FEMALE	A19 STORAGE ROOM	A20 STATIONARY ROOM	A21 ARCHIVES ROOM	A22 MANAGERS OFFICE	A23 VERANDAH	A24 VERANDAH	A25 IT ROOM				
FLOOR & FLOOR FINISH	1	TERMITE POISON	X	X	X	X	X	X	X		X	X	X			X	X	X			X	X		X				1	TERMITE POISON: Treat ground under all internal & external walls, concrete beds and reinforced concrete slabs with poison		
	2	100mm CONCRETE SURFACE BED	X	X	X	X	X	X	X		X	X	X			X	X	X			X	X		X				2	100MM CONCRETE SLAB: Cast on 250 micron polythene damp proof membrane green ,all side over laps sealed with approved contact adhesive on 50mm sand on approved filling, 150MPa		
	3	CERAMIC TILES	X							X		X								X	X							3	300x300mm CERAMIC TILES: As approved, on 3:1 cement mortar with light grey cement grout. All joints to be continuous in both directions with a total thickness of 20mm min. Tiles laid to	manufacturers recommendations and instructions. Tiles to be GRADE A quality. 5mm silicone joints at 5000mm spacings. Tiles to comply with SANS 1449	
	4	GRAND																							X	X		4	Existing granolithic floor to receive exterior paint finish colour to match existing		
	5	170mm CONCRETE SLAB																									X	5	170mm THICK CONCRETE SLAB: with powerfloated finish to engineers design and specification		
	6	500x500mm CARPET TILE		X	X	X	X	X	X		X		X	X	X	X	X	X				X	X	X	X			6	500x500mm CARPET TILE : Structured needlepunch carpet tile fixed with adhesive in a tessellated pattern as per manufacturers specification		
	7	LUXURY VINYL TILES																										7	3X175X1244mm Belgatox Clic system luxury vinyl planks fixed to top of screed as per manufacturers specification		
	8	MERANTI SKIRTING BOARD	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X	X	X	X		X	8	18x76mm MERANTI SKIRTING BOARD: Nailed to wall. All nails to be punched and filled. Finish with 2 coats clear eggshell polyurethane varnish finish		
WALLS	9	SEMI FACE BRICK IN STRETCHER BOND	X	X	X	X	X	X	X	X					X		X						X				9	SEMI FACEBRICK IN STRETCHER BOND: with all joints and perpends to be 10mm square deep recessed.			
	10	PLASTER AND PAINT (PVA)	X	X	X	X	X	X	X		X		X	X	X	X	X	X			X	X	X	X			X	10	PLASTER AND PAINT: Provide 1 coat acrylic PVA suitable for for washing with a mild detergent and with a mild finish. Apply	at 10 square meters per liter spread rate. Undercoat: Provide 1 coat alkali/alkali resistant 100% pure acrylic/Minocel. Spread rate 6 square meters per liter.	
	11	PLASTER AND PAINT (ENAMEL)								X		X							X	X								11	PLASTER AND PAINT: All walls finished with one coat plaster and painted with one coat alkali/alkali resistant primer, one universal undercoat and two coats	eggshell enamel paint.	
	12	SEMI FACEBRICK DADO WALL																										12	FACE BRICK DADO WALL: in stretcher bond with all joints and perpends 6mm deep square recessed. Face brick to be set forward so as to be flush with	PLASTER AND PAINT wall finish.Dado to be 13 brick courses high.	
	13	SPLASH BACK TILES										X																13	WHITE GLAZED TILES: 450mm above work top with returns to access and exit doors where applicable.		
	14	WALL TILES								X										X	X							14	WHITE GLAZED TILES: 150X150mm against plasterwork with white grouting up to door height, plasterwork above to ceiling height similar to item 11		
CILLS	15	BRICK ON EDGE							X		X								X	X								15	Brick on edge to match existing		
	16	CEMENT PLASTER INTERIOR							X		X								X	X								16	12mm CEMENT PLASTER WINDOW CILLS: finish as for PLASTER AND PAINT walls.		
CEILINGS	17	6.4mm GYPSUM BOARD CEILING							X										X	X								17	6.4mm GYPSUM CEILING BOARD: as described on roof plan. Finish two coats "benkgloss" PVA of approved colour to comply with SABS 634 "Gypsum", or	equivalent standard.Treat all nails & joints with one primer coat. Branding as described on roof plan.	
	18	4mm FIBRE CEMENT CEILING							X										X	X								18	4mm FIBRE CEMENT CEILING: As described on roof plan. Treat all nails and joints with one primer coat. Finish ceiling with one coat alkali/	base, one universal undercoat and two coats enamel paint to comply with SABS 620 type 2 or equivalent standard. Branding as described on roof plan.	
	19	ISOBOARD CORNICE	X	X	X	X	X	X	X		X	X	X	X	X	X	X				X	X	X	X				19	45x45mm ISOBOARD CORNICE: Laid flat and finished with 1 universal undercoat and 2 coats PVA paint.		
	20	ISOBOARD CEILING INSULATION	X	X	X	X	X	X	X		X	X	X	X	X	X	X				X	X	X	X				20	80mm ISOBOARD: "teqther" rigid extruded polystyrene foam board 600mm wide fixed with recommended adhesive at 200mm intervals to 38x38mm branding	at 600mm spacings with concealed clips to edges with 45x45mm iso-board cornice fixed as per manufacturers specifications	
	21	PLASTER AND PAINT																X	X	X						X	21	PLASTER AND PAINT: Provide 1 coat acrylic PVA suitable for for washing with a mild detergent and with a mild finish. Apply	at 10 square meters per liter spread rate. Undercoat: Provide 1 coat alkali/alkali resistant 100% pure acrylic/Minocel. Spread rate 6 square meters per liter.		
	22	POLYSTYRENE CORNICE								X										X	X				X	X		22	75x127mm POLYSTYRENE CORNICE: Laid flat and finished with 1 universal undercoat and 2 coats enamel paint.		
SANITARY FITTINGS	23	STANDARD WC (CISTERN IN DUCT)																	X	X								23	WC SUITE: White vitreous china back inlet wall hung pan with Geberit Komelitix element for wall hung WC. 1050mm (code 110.792.00.1), with Sigma concealed cistern 80mm	fixed with Sigma 30 white actuator plate (code 110.883.KH.1) with white heavy duty single plastic flap wax seal through the wall bracket	
	24	PARAPLEGIC SUITE							X																			24	Vaal Protea Paraplegic vitreous china outlet with matching 9L cistern complete with 800mm and chromium plated slide flush lever. Vaal Vitreous wash hand basin with chromium plated lever action pillar taps.	half pedestal code 715222. 32mm stainless self side grab rail, code DL2 and 32mm stainless steel rear grab rail around cistern, code SP2, cold water tap closest to toilet. Grab rails supplied by Charmain Industries	
	25	WALL HUNG URINAL																	X									25	VITREOUS CHINA WALL HUNG FLATBACK URINAL: 415x315x275mm with 36mm grating, top inlet spreader, flush valve with two hanger brackets		
	26	STAINLESS STEEL WASH HAND BASIN																										26	STAINLESS STEEL WHB: WHB range one piece pressed bowl (three bowls) in 304/18/8 0.9mm stainless steel, with splash back, lifting key, tap hole, square	mild steel gallow brackets & legs with soft black rubber P trap. Provide one chromium plated basin pillar tap per basin.	
	27	STAINLESS STEEL SINK									X																	27	3 steel double bowl sink with black soft rubber P trap. Provide one chromium plated basin tap as approved.		
	28	WHITE GLAZED PORCELAIN WHB																	X	X								28	APPROVED WHITE C/L PORCELAIN ENAMELED WHB: On half concealed supports. WHB set with 31 mm chromium plated whb outlet, with plug.	chain, anchor and 32mm back nut complete. Provide one chromium plated mixer tap as approved. Provide black soft rubber P trap.	
FITTINGS	29	TOILET ROLL HOLDER								X									X	X								29	TOILET ROLL HOLDER: Vaal code 715110980205x160x90mm ceramic toilet roll holder white		
	30	TOWEL RAIL								X		X							X	X								30	600x16mm STAINLESS STEEL CHROMIUM PLATED TOWEL RAIL: complete with chromium plated end brackets plugged and screwed to wall		
	31	GLASS MIRROR								X									X	X								31	500x800mm SILVERED FLOAT GLASS MIRROR: Class A with chamfered or polished edges. Fix to wall with chromium plated mirror screws and allow 3mm air space at the back for ventilation. 1 per basin		
	32	GRAB RAIL								X																		32	GRADE 316 STAINLESS STEEL GRAB RAIL: 32mm Diameter fixed on to wall with plastic wall plugs. Flanges 90mm diam drilled and countersunk for 3 fixing screws		
	33	FIRE EXTINGUISHER		X	X	X	X	X	X											X	X							33	4.5kg DCP dry powder chemical fire extinguisher with hook made of 120x20x2mm mild steel strip bent to form hook for extinguisher screwed twice to 550x100x22	hardwood. Hardwood screwed and plugged with 6 screws and plugs. Positioned as shown on site. Provide 100x100mm ABS plastic symbol: safety sign - type FB2 Plugged and screwed to wall at all fire extinguishers.	
	34	HAND DRYER								X										X	X							34	Radiant lighting HD 140 Stainless steel hand dryer		
	35	SAFE																										35	WALL SAFE: Approx. size 280 x 310 x 230mm deep, bolted to wall with expansion bolts to inside of safe, with integrated security lock.		
	36	BLINDS	X								X	X		X	X	X	X		X	X	X	X	X	X				36	25mm Aluminium venetian blinds Gloss white		
	37	PINNING BOARD										X		X	X	X	X							X				37	900X600mm Green Pano" pin board with mounting hooks included		
	38	SHELVING																						X				38	8 Bay High density shelving system		
	39	SOAP DISPENSER								X										X	X								39	Standard wall mounted stainless steel manual soap dispenser, 1.25L capacity	
	40	MESH		X	X	X	X	X	X																			40	Meriton 70 VEM 325A expanded metal mesh welded to 25mmX50mmX2.5mm Rectangular steel tubing/ Frame to be welded to top of mild steel channel profile - only over cubicle footprint		
	41	WRITING SURFACE SHELF	X	X	X	X	X	X	X	X																		41	32mm Formica postform worktop in Woodland fusion finish with bullnose edging to sides		
	42																											42			
	43																											43			
	44																											44			

NO.

DATE

AMENDMENTS

D.P.W

Copyright vests in
Department of Public Works

as-built drawings


nameG J SCHOONRAAD

date

professional registration number5846


cad file name

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Department:
Public Works
REPUBLIC OF SOUTH AFRICA

consultant



discipline

ARCHITECT

service

PRETORIA: THABA TSHWANE
JOINTSUPPORT BASE (JSB)
GARRISON FINANCE OFFICE

WCS number

052557

drawing title

FINISHING SCHEDULE

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designed

GJS

scale

AS SHOWN

drawn

GJS

date

01 SEPT 2023

checked

GJS

DPW drawing number

052557/ 11

ELECTRICAL SPECIFICATIONS



public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA



DEPARTMENT OF PUBLIC WORKS

JSB FINANCE OF REFURBISHMENT

ELECTRICAL WORKS

MAY 2024

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SPECIFICATION FOR ELECTRICAL WORK

PART 1 - GENERAL

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PART 1 - GENERAL

1 TESTS

After completion of the works and before first delivery is taken, a full test will be carried out on the installation for a period of sufficient duration to determine the satisfactory working thereof. During this period the installations will be inspected and the Contractor shall make good, to the satisfaction of the Representative/Agent, any defects which may arise.

The Contractor shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installations at completion.

2 MAINTENANCE OF INSTALLATIONS

With effect from the date of the First Delivery Certificate the Contractor shall at his own expense undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.

If during the said period the installations is not in working order for any reason for which the Contractor is responsible, or if the installations develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Contractor shall, if called upon by the Representative/Agent or the Director-General, at his own expense replace the whole of the installations or such parts thereof as the Representative/Agent or the Director-General may deem necessary with apparatus specified by the Representative/Agent or the Director-General.

3 REGULATIONS

The installation shall be erected and tested in accordance with the Acts and Regulations as indicated in the scope of works

4 NOTICES AND FEES

The Contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority.

On production of the official account, only the net amount of the fee charged by the Supply Authority for connection of the installation to the supply mains, will be refunded to the Contractor by the City.

5 SCHEDULE OF FITTINGS

In all instances where schedule of light, socket outlet and power points are attached to or included on the drawings, these schedules are to be regarded as forming part of the specification.

6 QUALITY OF MATERIALS

Only materials of first class quality shall be used and all materials shall be subject to the approval of the Department. Department specifications for various materials to be used on this Contract are attached to and form part of this specification.

Wherever applicable the material is to comply with the relevant South African Bureau of Standards, specifications, or to British Standard Specifications, where no SABS Specifications exist.

Materials wherever possible, must be of South African manufacture.

7 CONDUIT AND ACCESSORIES

The type of conduit and accessories required for the service, i.e. whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall

be black enamelled or galvanised, is specified in Part 2 of this specification.

Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.

The conduit and conduit accessories shall comply fully with the applicable SABS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

- a) Screwed metallic conduit and accessories: SABS 1065, parts 1 and 2.
- b) Plain-end metallic conduit and accessories: SABS 1065, parts 1 and 2.
- c) Non-metallic conduit and accessories: SABS 950

All conduit fittings except couplings, shall be of the inspection type. Where cast metal conduit accessories are used, these shall be of malleable iron. Zinc base fittings will not be allowed.

Bushes used for metallic conduit shall be brass and shall be provided in addition to locknuts at all points where the conduit terminates at switchboards, switch-boxes, draw-boxes, etc.

Draw-boxes are to be provided in accordance with the "Wiring Code" and wherever necessary to facilitate easy wiring.

For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.

Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.

Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.

All metallic conduit shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.

Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must on indication by the Department's inspectorate staff, be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the Contractor's expense.

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaires as well as all load bearing conduit shall in all instances be of the metallic screwed type.

All conduit and accessories used in areas within 50 km of the coast shall be galvanised to SABS 763.

Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Department to any claim submitted by the Contractor, which may result from a lack of knowledge in regard to the supply authority's requirements.

8 CONDUIT IN ROOF SPACES

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles screwed to the roof timbers.

Nail or crampets will not be allowed.

Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450 mm. The Contractor shall supply and install all additional supporting timbers in the roof space as required.

Under flat roofs, in false ceilings or where there is less than 0,9m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.

Conduit runs from distribution boards shall, where possible terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards.

9 SURFACE MOUNTED CONDUIT

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified under Part 2 of the specification, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

The use of inspection bends is to be avoided and instead the conduit shall be set uniformly and inspection coupling used where necessary.

No threads will be permitted to show when the conduit installation is complete, except where running couplings have been employed.

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

Conduit is to be run on approved spaced saddles rigidly secured to the walls.

Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.

Crossing of conduits is to be avoided, however, should it be necessary purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.

Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.

Distribution boards, draw-boxes, industrial switches and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.

In situations where there are no ceilings the conduits are to be run along the wall plates and the beams.

Painting of surface conduit shall match the colour of the adjacent wall finishes.

Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc., and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls, wood plugs and the plugging in joints in brick walls are not acceptable.

10 CONDUIT IN CONCRETE SLABS

In order not to delay building operations the Contractor must ensure that all conduits and other electrical equipment which are to be cast in the concrete columns and slabs are installed in good time.

The Contractor shall have a representative in attendance at all times when the casting of concrete takes place.

Draw-boxes, expansion joint boxes and round conduit boxes are to be provided where necessary. Sharp bends of any nature will not be allowed in concrete slabs.

Draw and/or inspection boxes shall be grouped under one common cover plate, and must preferably be installed in passages or male toilets.

All boxes, etc., are to be securely fixed to the shuttering to prevent displacement when concrete is cast. The conduit shall be supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete slabs and/or beams.

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

11 FLEXIBLE CONNECTIONS FOR CONNECTING UP OF STOVES, MACHINES, ETC.

Flexible tubing connections shall be of galvanised steel construction, and in damp situations of the plastic sheathed galvanised steel type. Other types may only be used subject to the prior approval of the Department's site electrical representative.

Connectors for coupling onto the flexible tubing shall be of the gland or screw-in types, manufactured of either brass or cadmium or zinc plated mild steel, and the connectors after having been fixed onto the tubing, shall be durable and mechanically sound.

Aluminium and zinc alloy connectors will not be acceptable.

12 WIRING:

Except where otherwise specified in Part 2 of this specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes. All conduits to be clear of moisture and debris before wiring is commenced.

Unless otherwise specified in Part 2 of this specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 1,5mm² conductors and a 1,5mm²-earth conductor. For socket outlet circuits the wiring shall comprise 2.5mm² conductors and a 2,5mm²-earth conductor. In certain instances, as will be directed in Part 2 of this specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

The loop-in system shall be followed throughout, and no joints of any description will be permitted.

The wiring shall be done in PVC insulated 600/1000 V grade cable to SABS 150.

Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

13 SWITCHES AND SOCKET OUTLETS

All switches and switch-socket outlet combination units shall conform to the Department Quality Specifications, which form part of this specification.

No other than 16 A 3 pin sockets are to be used, unless other special purpose types are distinctly

specified or shown on the drawings.

All light switches shall be installed at 1,4m above finished floor level and all socket outlets as directed in the Schedule of Fittings which forms part of this specification or alternatively the height of socket outlets may be indicated on the drawings.

14 SWITCHGEAR

Switchgear, which includes circuit breakers, iron-clad switches, interlocked switch-socket outlet units, contactors, time switches, etc., is to be in accordance with the Department Quality Specifications which form part of this specification and shall be equal and similar in quality to such brands as may be specified.

For uniform appearance of switchboards, only one approved make of each of the different classes of switchgear mentioned in the Quality Specifications shall be used throughout the installations.

15 SWITCHBOARDS

All boards shall be in accordance with the types as specified, be constructed according to the detail or type drawings and must be approved by the Department before installation.

In all instances where provision is to be made on boards for the supply authority's main switch and/or metering equipment the contractor must ensure that all requirements of the authorities concerned in this respect are met.

Any construction or standard type aboard proposed, as an alternative to that specified must have the prior approval of the Department.

All busbars, wiring, terminals, etc., are to be adequately insulated and all wiring is to enter the switchgear from the back of the board. The switchgear shall be mounted within the boards to give a flush front panel. Cable and boxes and other ancillary equipment must be provided where required.

Clearly engraved labels are to be mounted on or below every switch. The working of the labels in English and Afrikaans, is to be according to the lay-out drawings or as directed by the Department's representative and must be confirmed on site. Flush mounted boards to be installed with the top of the board 2,0m above the finished floor level.

16 WORKMANSHIP AND STAFF

Except in the case of electrical installations supplied by a single-phase electricity supply at the point of supply, an accredited person shall exercise general control over all electrical installation work being carried out.

The workmanship shall be of the highest grade and to the satisfaction of the Department.

All inferior work shall, on indication by the Department's inspecting officers, immediately be removed and rectified by and at the expense of the Contractor.

17 CERTIFICATE OF COMPLIANCE

On completion of the service, a certificate of compliance must be issued to the Department's Representative/Agent in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

18 EARTHING OF INSTALLATION

Main earthing

The type of main earthing must be as required by the supply authority if other than the Departments, and in any event as directed by the Department's representative, who may require additional earthing to meet test standards.

Where required an earth mat shall be provided, the minimum size, unless otherwise specified, being 1,0m

x 1,0m and consisting of 4mm diameter hard-drawn bare copper wires at 250mm centres, brazed at all intersections.

Alternatively or additionally earth rods or trench earths may be required as specified or directed by the Department's authorised representative.

Installations shall be effectively earthed in accordance with the "Wiring Code" and to the requirements of the supply authority. All earth conductors shall be stranded copper with or without green PVC installation.

Connection from the main earth bar on the main board must be made to the cold water main, the incoming service earth conductor, if any and the earth mat or other local electrode by means of 12mm x 1,60 mm solid copper strapping or 16 mm² stranded (not solid) bare copper wire or such conductor as the Department's representative may direct. Main earth copper strapping where installed below 3m from ground level, must be run in 20 mm diameter conduit securely fixed to the walls.

All other hot and cold water pipes shall be connected with 12mm x 0,8mm perforated for solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150-mm centres. In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each distribution board.

Roofs, gutters and down pipes

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor and each switchboard. The roof and gutters shall be connected at 15m intervals to this conductor by means of 12mm X 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

Sub-distribution boards

A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of a bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised where specified or approved.

Sub-circuits

The earth conductors of fall sub-circuits shall be connected to the earth busbar in the supply board in accordance with SABS 0142.

Ring Mains

Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SABS 0142. In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer. Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or soldered. The common earth shall not be broken.

Non-metallic Conduit

Where non-metallic conduit is specified or allowed, the installation shall comply with the Department's standard quality specification for "conduit and conduit accessories".

Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards,

luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

Flexible Conduit

An earth conductor shall be installed in all non-metal flexible conduit. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

Connection

Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.

Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.

19 MOUNTING AND POSITIONING OF LUMINAIRES

The Contractor is to note that in the case of board and acoustic tile ceilings, i.e. as opposed to concrete slabs, close co-operation with the building contractor is necessary to ensure that as far as possible the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings must be adhered to as far as possible and must be confirmed with the Department's representative.

Fluorescent luminaires installed against concrete ceilings shall be screwed to the outlet boxes and in addition 2 x 6mm expansion or other approved type fixing bolts are to be provided. The bolts are to be $\frac{3}{4}$ of the length of the luminaires apart.

Fluorescent luminaires to be mounted on board ceilings shall be secured by means of two 40mm x No. 10 round head screws and washers. The luminaires shall also be bonded to the circuit conduit by means of locknuts and brass bushes. The fixing screws are to be placed $\frac{3}{4}$ of the length of the fitting apart.

Earth conductors must be drawn in with the circuit wiring and connected to the earthing terminal of all fluorescent luminaires as well as other luminaires exposed to the weather in accordance with the "Wiring Code".

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs. Against board ceilings the luminaires shall be secured to the bracing or joists by means of two 40mm x No. 8 round head screws.

PART 2: INSTALLATION DETAILS

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PART 2: INSTALLATION DETAILS

1 CABLE SLEEVE PIPES

Where cables cross under roadways, other services and where cables enter buildings, the cables shall be installed in asbestos-cement pipes, earthenware or high-density polyethylene pipes.

The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

2 NOTICES

The Contractor shall issue all notices and make the necessary arrangements with Supply Authorities, the Postmaster-General, S.A. Transport Services, Provincial or National Road Authorities and other authorities as may be required with respect to the installation.

3 ELECTRICAL EQUIPMENT

All equipment and fittings supplied must be in accordance with the attached quality specification (Part 3 of this document), suitable for the relevant supply voltage, and frequency and must be approved by the Department's representative.

4 DRAWINGS

The drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed.

The position of power points, switches and light points that may be influenced by built-in furniture must be established on site, prior to these items being built in.

5 BALANCING OF LOAD

The Contractor is required to balance the load as equally as possible over the multiphase supply.

6 SERVICE CONDITIONS

All plant shall be designed for the climatic conditions appertaining to the service.

7 SWITCHES AND SOCKET OUTLETS

The installation of switches and socket outlets must conform to clause 13 of Part 1 of this specification.

8 LIGHT FITTINGS AND LAMPS

The installation and mounting of luminaires must conform with clause 19 of Part 1 of this specification.

All fittings to be supplied by the Contractor shall have the approval of the Department. Incandescent lamps shall bear the approved mark of the S.A.B.S. and shall have the British light centre length.

The light fittings must be of the type specified in the Schedule of Light Fittings.

9 EARTHING AND BONDING

The Contractor will be responsible for all earthing and bonding of the building and installation. The earthing and bonding is to be carried out strictly as described in clause 18 of Part 1 of this specification and to the satisfaction of the Department's representative.

10 MAINTENANCE OF ELECTRICAL SUPPLY

All interruptions of the electrical supply that may be necessary for the execution of the work, will be subject to prior arrangement between the Contractor and the user Department and the Department's representative.

11 EXTENT OF WORK

The work covered by this contract comprises the complete electrical installation, in working order, as shown on the drawings and as per this specification, including the supply and installation of all fittings and also the installation of such equipment supplied by the Department.

12 SUPPLY AND CONNECTION

The supply will be at 400/230 Volt 50Hz.

The Contractor will be responsible for the supply and installation of the supply cable from the mini substation to the main low-tension distribution board (MDB). The size and length of the cable is listed in the Schedule of Cables and measured in the Bills of Quantities.

Standby Plant

The 50kVA standby plant complete with automatic changeover control panel (at DB Main) be supplied, installed and commissioned by others.

The Contractor will only be responsible for the supply and installation of the cable connections between the Main Distribution Board and the Charge- over Control Panel.

The supply cables are listed in the Schedule of Cables and measured in the Bills of Quantities.

13 CONDUIT AND WIRING

Conduit and conduit accessories shall be black enameled/galvanised screwed conduit or black enameled/galvanised plain end conduit in accordance with SABS 162, 763 and 1007 respectively.

All conduits, regardless of the system employed, shall be installed strictly as described in the applicable paragraphs of clauses 4 to 8 of Part 1 of the specification. Wiring of the installation shall be carried out as directed in clause 9 part 1 of this specification.

Where plain end conduit is offered all switches and light fittings must be supplied with a permanent earth terminal for the connection of the earth wire.

Lugs held by switch fixing screws or self tapping screws will not be acceptable.

13.1 Telephone Installation

The Contractor shall allow for the complete installation of all conduits, outlet boxes, TELKOM Distribution boards, sleeve pipes, etc., required for the telephone system as shown on the drawings.

The sizes of all telephone conduits are indicated on the drawings and must be installed in the floor slab. Galvanised steel draw-wires shall be installed in all conduits.

End boxes must consist of a 50mm x 100 mm x 100mm outlet box fitted with suitable blank cover plates, flush mounted 0,4m above floor level.

The TELKOM Distribution Board must consist of a 150mm x 600mm x 600mm metal box and hinged door with a 20mm thick wooden backboard. The board must be flush mounted, 1,37m above the floor.

13.2 Intercom Installation

The supply and installation of the intercom system is not included in this Contract.

The Contractor shall allow for the complete supply and installation of all conduits and outlet boxes required for the intercom installation as shown on the drawings.

The size of all conduits, boxes and mounting heights of the end boxes are indicated on the drawings. Galvanised steel draw-wires shall be installed in all conduits and the boxes fitted with suitable blank cover plates.

13. Power Trunking

The Contractor shall be responsible for the supply and installation of all power trunking complete with corner pieces, end pieces, junction pieces, supply conduits, cover plates and power outlets as specified and indicated on the drawings.

The power trunking must comply with SABS 1197. The Contractor must ensure that the power trunking is installed to satisfaction of the Department's representative before commencing with the wiring of the power trunking.

[The method of installing and wiring of the power trunking must be specified in detail.]

14 POWER POINTS

Allow for the installation of power points and equipment as listed in the schedule, indicated on the drawings and described below:

14.1 HVAC

14.2 WATER HEATERS

The power points required for the service must be specified in detail with reference to supplier of the equipment, method of installation and final connection. The size of the conduit/the conductors and cable must be listed in the Schedule of Power Points.

Example: Water Heaters

The Contractor must electrically connect all water heaters as specified and listed in the Schedule of Power Points.

NOTE: The hot water installation must be approved by the Department's Representative/Agent. Detail with regard to the size and type of water heaters that must be provided must be obtained from the Architect.

16 CABLES

The Contractor shall supply and completely install all distribution cables as indicated on the drawings, and listed in the Schedule of Cables.

The storage, transportation, handling and laying of the cables shall be according to first class practice, and the contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.

The cable-trenches shall be excavated to a depth of 0,9m deep below ground level and shall be 450mm wide for one to three cables, and the width shall be increased where more than three cables are laid together so that the cables may be placed at least two cable diameters apart throughout the run. The bottom of the trench shall be level and clean and the bottom and sites free from rocks or stones liable to cause damage to the cable.

The Contractor must take all necessary precautions to prevent the trenching work being in any way a hazard to the personnel and public and to safeguard all structures, roads, sewage works or other property on the site from any risk of subsidence and damage.

In the trenches the cables shall be laid on a 75mm thick bed of earth and be covered with a 150-mm layer

of earth before the trench is filled in.

All joints in underground cables and terminations shall be made either by means of compound filled boxes according to the best established practice by competent cable jointers using first class materials or by means of approved epoxy-resin pressure type jointing kits such as "Scotchcast". Epoxy-resin joints must be made entirely in accordance with the manufacturer's instructions and with materials stipulated in such instructions. Low tension PVCA cables are to be made off with sealing glands and materials designed for this purpose which must be of an approved make. Where cables are cut and not immediately made off, the ends are to be sealed without delay.

The laying of cables shall not be commenced until the trenches have been inspected and approved. The cable shall be removed from the drum in such a way that no twisting, tension or mechanical damage is caused and must be adequately supported at 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 drawing in of the cables.

Backfilling (after bedding) of the trenches 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 150mm. The surface is to be made good as required.

On each completed section of the laid and jointed cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less than 500 V for low tension cables.

Earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such continuity conductors are to be stranded bare copper of a cross-sectional area equal to at least half that of one live conductor of the cable, but shall not be less than 4mm² or more than 70mm². A single earth wire may be used as earth continuity conductor for two or more cables run together, branch earth wires being brazed on where required.

16.1 LAYING, JOINTING AND MAKING OFF OF ELECTRICAL CABLES

[The requirements specified hereafter, are aimed essentially at high tension cable but are also valid for low tension cable, where applicable.]

1. The use of the term "Inspector", includes the engineer or inspector of the Department or an empowered person of the concerned supervising consulting engineer's firm.
2. No cable is to be laid before the cable trench is approved and the soil qualification of the excavation is agreed upon by the Contractor and inspector.
3. After the cable has been laid and before the cable trench is back-filled the inspector must ensure that the cable is properly bedded and that there is no undesirable material included in the bedding layer.
4. All cable jointing and the making off of the cables must only be carried out by qualified experienced cable jointers. Helpers of the jointers may not saw, strip, cut, solder, etc. The cable and other work undertaken by them must be carried out under the strict and constant supervision of the jointer.
5. Before the Contractor allows the jointer to commence with the jointing work or making off of the cable (making off is recognized as half a joint) he must take care and ensure:
 - 5.1 that he has adequate and suitable material available to complete the joint properly and efficiently. Special attention must be given to ensure the cable furrules and cable lugs are of tinned copper and of sufficient size. The length of the jointing lugs must be at least six times the diameter of the conductor,
 - 5.2 that the joint pit is dry and that all loose stones and material are removed,
 - 5.3 that the walls and banks of the joint pit are reasonable firm and free from loose material which can

fall into the pit,

- 5.4 that the necessary coffer-dams or retaining walls are made to stop the flow of water into the joint pit,
- 5.5 that the joint pit is provided with suitable groundsheets so that the jointing work is carried out in clean conditions,
- 5.6 that the necessary tents or sails are installed over the joint pit to effectively avert unexpected rainfall and that sufficient light or lighting is provided,
- 5.7 that the necessary means are available to efficiently seal the jointing or cable end when an unexpected storm or cloudburst occurs, regardless of how far the work has progressed,
- 5.8 that the cables and other materials are dry, undamaged and in all respects are suitable for the joint work or making off,
- 5.9 that the heating of cable oil, cable compound, plumbers metal and solder is arranged that they are at the correct temperature when required so that the cable is not unnecessarily exposed to the atmosphere and consequently the ingress of moisture (care must be taken of overheating)

Flow temperatures of cable oil and compound must be determined with suitable thermometers. Cable oil and compound must not be heated to exceed the temperatures given on the containers and precaution must be taken to ensure that the tin is not overheated in one position. The whole mass must be evenly and proportionally heated.

(Temperatures of solder and plumbers metal may be tested with brown paper (testing time: 3 seconds). The paper must colour slightly - not black or burnt).

- 6. Before the paper-insulated cables are joined, they must be tested for the presence of moisture by the cable jointers test. This consists of the insertion of a piece of unhandled insulated impregnated paper tape in warm cable oil heated to a temperature of $130 \pm 5^{\circ}\text{C}$.

Froth on the surface of the oil is an indication that moisture is present in the impregnated insulation and the amount of the froth gives an indication of the moisture present.

- 7. If the cable contains moisture or is found to be otherwise unsuitable for jointing or making of the inspector is to be notified immediately and he will issue the necessary instruction to cope with the situation.
- 8. The joint or making off of paper insulated cables must not be commenced during rainy weather.
- 9. Once a joint is in progress the jointer must proceed with the joint until it is complete and before he leaves the site.
- 10. The jointer must ensure that the material and his tools are dry at all times, reasonably clean and absolutely free from soil.
- 11. Relating to the jointing of the cable the following requirements apply:
 - 11.1 All jointing must be carried out in accordance with recognized and tried techniques and comply strictly with the instructions given by the supplier of the jointing kit.
 - 11.2 The cables must be twisted by hand so that the cores can be joined according to the core numbers. If necessary the cable is to be exposed for a short distance to accomplish this. Under no circumstances may the cores in a joint be crossed so as to enable cores to be joined according to the core numbers. If it is not possible to twist the cables so that the preceding requirements can be met, then cores are to be joined in the normal way without any consideration of the core numbers.
 - 11.3 Normally the cables will have profile conductors. The conductors shall be pinched with gas pliers

to form a circular section, bound with binding wire so that they do not spread, and then tinned before jointing.

- 11.4 Jointing ferrules, the length of which are at least 6 times the diameter of the conductors, must be slid over the conductor ends to be joined and pinched tightly. Then they are soldered by means of the ladle process whilst being pinched further closed.

Use resin only as a flux. The slot opening in the ferrule must be completely filled, including all depressions.

Remove all superfluous metal with a cloth dipped in tallow. Work during the soldering process must be from top to bottom. Rub the ferrule smooth and clean with aluminium oxide tape after it has cooled down to ensure that there are not any sharp points or edges.

NB: The spaces between the conductor strands must be completely filled by soldering process and must be carried out quick enough to prevent the paper insulation from burning or drying out unnecessarily.

- 11.5 After the ferrules have been rubbed smooth and clean, they and the exposed cores must be treated with hot cable oil (110°C) to remove all dust and moisture. These parts are to be thoroughly basted with the oil.

- 11.6 The jointer must take care that his hands are dry and clean before the joint is insulated. Also the insulating tape which is to be used must first be immersed in warm cable oil (110°C) for a sufficient period to ensure that no moisture is present.

- 11.7 After the individual cores have been installed they must be well basted with hot cable oil and again after the applicable separator and/or belt insulation tape is applied before the lead joint sleeve is placed in position.

- 11.8 The lead joint sleeve must be thoroughly cleaned and prepared before it is placed on the cable and must be kept clean during the whole jointing process. Seal the filling apertures of the sleeve with tape until the sleeve is ready for compound filling.

- 11.9 The plumbing joints employed to solder the joint sleeve to the cable sheath, must be cooled off with tallow and the joint sleeve is to be filled with compound while it is still warm. Top up continuously until the joint is completely filled to compensate for the compound shrinkage.

- 11.10 The outer joint box must be clean and free from corrosion. After it has been placed in position it must be slightly heated before being filled with compound. Top up until completely full.

12. As far as cable end boxes are concerned the requirements as set out above are valid where applicable.

17. DISTRIBUTION BOARDS

In addition to clause 14 and clause 15 of Part 1 of this specification the following shall also be applicable to switchboards required for this service.

The Contractor shall supply and install the distribution boards as indicated on the drawings and listed in the distribution Board Schedule. All distribution boards shall comply with the quality specification in Part 3 of this specification, and be approved by the Department's representative.



public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF PUBLIC WORKS

JSB FINANCE OF REFURBISHMENT

ELECTRICAL WORKS

NOVEMBER 2016

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**DEPARTMENT OF PUBLIC WORKS
JSB FINANCE OF REFURBISHMENT
ELECTRICAL WORKS
PART B : SECTION 3: SCHEDULES**

3.1 GENERAL

This section of the specification forms part of and must be read in conjunction with the general and supplementary specification, as well as the drawings.

3.2 SCHEDULE OF LIGHT FITTINGS

The light fittings and accessories are to be according to the quality specifications and shall be approved by the Engineer. All lights to be **LED**.

Type	Description
F1	Type F1 – Open Channel fluorescent fitting-1200mm x 1 x 58w tubes with ac mat difuser
F2	Type F2 - Open Channel fluorescent fitting-1200mm x 2 x 58w tubes with ac mat difuser
B1	Bulkhead luminaire with 2 x 9 Watt PL 9 lamps with double ballasts
B2	Bulkhead luminaire with 2 x 18 Watt PL18 lamps with double ballasts
D	Ceiling Mount Downlight 30 Watt
OS	1200W Occupancy Sensor

3.3 SCHEDULE OF SPECIAL POWER POINTS

3.3.1 HOT WATER INSTALLATION

BOARD	OWER POINT	TYPE	SIZE OF CABLES, CONDUIT AND WIRING	LOAD WATTS
DB-1	SP1	20litre under basin water geyser	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2000

3.3.2 HEATING, VENTILLATION AND AIR CONDITIONING

BOARD	POWER POINT	TYPE	SIZE OF CABLES, CONDUIT AND WIRING	LOAD WATTS
DB-1 Normal Power	AC. 1&2	2 X 4-WAY CEILING CASSETTE SPLIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2000

DB-1 Normal Power	EF2 & FF1	CEILING MOUNTED FAN/ SILENT IN-LINE FAN	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2500
DB-1 Normal Power	AC. 3&4	2 X 4-WAY CEILING CASSETTE SPLIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2000
DB-2 Normal Power	EF2 & FF2	CEILING MOUNTED FAN/ SILENT IN-LINE FAN	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2500
DB-2 Normal Power	AC. 6&7	4-WAY CEILING CASSETTE SPLIT/ HIDEAWAY SPLIT UNIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2500
DB-2 Normal Power	AC. 9&10	2 X 4-WAY CEILING CASSETTE SPLIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2000
DB-2 Normal Power	AC.5	HIDEAWAY SPLIT UNIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	3700
DB-1 Standby Power	AC. 8	MIDWALL PLIT UNIT	20mm dia. conduit with 2 x 4mm ² conductors and 2,5mm ² earth wire	2000

3.4 **SCHEDULE OF CABLES**

3.4.1 **NORMAL POWER**

This is an installation reticulated from the existing 315kVA connection point to the main distribution board and to the buildings' sub-distribution board.

DB/Kiosk	Supplied from	1 Pole Cable	3 Pole Cable	Length (m)
DB-1	Minisub	N/A	35 - 3ø 4core PVC	42
DB-2	DB-1	N/A	16 - 3ø 4core PVC	12

3.4.2 **STANDBY POWER**

DB/Kiosk	Supplied from	1 Pole Cable	3 Pole Cable	Length (m)
Standby Generator	DB-1	N/A	16 - 3ø 4core PVC	22
DB-1	Standby Generator	N/A	16 - 3ø 4core PVC	22
DB-2	DB-1	N/A	10 - 3ø 4core PVC	10

3.5 **SCHEDULE OF DISTRIBUTION BOARDS**

The front panels of normal supply, standby power and no-break supply sections shall be painted in distinctive colours as follows:

Normal supply : Light Orange, colour B26 of SABS 1091.
Standby power : Signal Red, colour A11 of SABS 1091.
No-break supply: Dark Violet, colour F06 or Olive Green,
Colour H05 of SABS 1091.

Indicated is the probable fault level rating (kA) of the busbars. Refer to the Summary of Switchgear and Circuits for the minimum fault level rating of specified equipment.

Indicated is the probable fault level rating (kA) of the busbars. Refer to the Summary of Switchgear for the minimum fault level rating of specified equipment.

DB/Kiosk	Type	Panel	Fault Level (kA)
DB-1	Wall Mounted with doors	Normal Power / Emergency Power	6/2.5
DB-2	Wall Mounted with doors	Normal Power / Emergency Power	3/2.5
DB-1-UPS	Wall Mounted with doors	Emergency Power	2.5

The indicated fault current rating (kA) is the minimum value that the switchgear must comply with for connecting to the busbars of the respective panels-distribution boards.

3.6 **SUMMARY OF SWITCHGEAR AND CIRCUITS**

3.6.1 **Miniature Substation**

Normal Power

Main MCB : 1 x 125A 10kA three pole circuit breaker

3.6.2 **DB-1**

This is the new indoor wall mounted DB. The indicated fault current rating (kA) is the minimum value that the switchgear must comply with for connecting the bus-bar.

Normal Power

Main Switch : 1 x 100A 6kA three pole circuit breaker
Supply to AC 1&2 : 1 x 20A 6kA double Pole circuit breaker
Supply to EF1 & FF1 : 1 x 20A 6kA double Pole circuit breaker

Supply to AC 3&4	:	1 x 20A 6kA double Pole circuit breaker
Supply to Geyser	:	1 x 20A 6kA double Pole circuit breaker
Spare	:	1 x 20A 6kA double Pole circuit breaker
Supply to DB-2	:	1 x 30A 6kA three pole circuit breaker
Supply to Standby Generator	:	1 x 60A 6kA three pole circuit breaker
Supply to L1	:	1 x 10A 6kA single pole circuit breaker
Supply to L2	:	1 x 10A 6kA single pole circuit breaker
Supply to L3	:	1 x 10A 6kA single pole circuit breaker
Spare	:	1 x 10A 6kA single pole circuit breaker
Supply to D1	:	1 x 20A 6kA single pole circuit breaker
Supply to Spare	:	1 x 20A 6kA single pole circuit breaker
MCB to Power Circuits	:	1 x 60A 6kA double Pole circuit breaker with earth Leakage Protection
Supply to P1	:	1 x 20A 6kA single pole circuit breaker
Supply to P2	:	1 x 20A 6kA single pole circuit breaker
Supply to P3	:	1 x 20A 6kA single pole circuit breaker
Supply to Spare	:	1 x 20A 6kA single pole circuit breaker
Standby Power		
Main Switch	:	1 x 40A 2.5kA three pole circuit breaker
Supply to DB-2	:	1 x 30A 2.5kA three pole + neutral circuit breaker
Supply to L1	:	1 x 10A 2.5kA single pole circuit breaker
Supply to L2	:	1 x 10A 2.5kA single pole circuit breaker
Spare	:	1 x 10A 2.5kA three pole circuit breaker
Supply to AC.8	:	1 x 20A 2.5kA three Pole circuit breaker
Spare	:	1 x 20A 2.5kA double Pole circuit breaker
MCB to Power Circuits	:	1 x 60A 2.5kA double Pole circuit breaker with earth Leakage Protection`
Supply to P1	:	1 x 20A 2.5kA single pole circuit breaker
Supply to P2	:	1 x 20A 2.5kA single pole circuit breaker

Supply to P3	:	1 x 20A 2.5kA single pole circuit breaker
Supply to P4	:	1 x 20A 2.5kA single pole circuit breaker
Spare	:	1 x 20A 2.5kA single pole circuit breaker

3.6.3 DB-2

This is the new indoor wall mounted DB. The indicated fault current rating (kA) is the minimum value that the switchgear must comply with for connecting the bus-bar.

Normal Power

Main Switch	:	1 x 60A 3kA three pole + neutral circuit breaker
Supply to EF2 & FF2	:	1 x 20A 3kA double Pole circuit breaker
Supply to AC.9 & AC10	:	1 x 20A 3kA double Pole circuit breaker
Supply to AC.6 & AC.7	:	1 x 20A 3kA three Pole circuit breaker
Supply to AC 5	:	1 x 20A 6kA three Pole circuit breaker

Supply to L1	:	1 x 10A 3kA single pole circuit breaker
Supply to L2	:	1 x 10A 3kA single pole circuit breaker
Supply to L3	:	1 x 10A 3kA single pole circuit breaker
Supply to L4	:	1 x 10A 3kA single pole circuit breaker
Spare	:	1 x 10A 3kA single pole circuit breaker

MCB to Power Circuits	:	1 x 60A 3kA double Pole circuit breaker with earth Leakage Protection
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Supply to P1	:	1 x 20A 3kA single pole circuit breaker
Supply to P2	:	1 x 20A 3kA single pole circuit breaker
Supply to P3	:	1 x 20A 3kA single pole circuit breaker
Supply to Spare	:	1 x 20A 3kA single pole circuit breaker

Supply to D1	:	1 x 20A 3kA single pole circuit breaker
Supply to D2	:	1 x 20A 3kA single pole circuit breaker
Supply to Spare	:	1 x 20A 3kA single pole circuit breaker

Standby Power

Main Switch	:	1 x 30A 2.5kA three pole isolator
Supply to L1	:	1 x 10A 2.5kA single pole circuit breaker
Supply to L2	:	1 x 10A 2.5kA single pole circuit breaker
Spare	:	1 x 10A 2.5kA single pole circuit breaker

MCB to Power Circuits	:	1 x 30A 2.5kA double Pole circuit breaker with earth Leakage Protection
Supply to P1	:	1 x 20A 2.5kA single pole circuit breaker
Spare	:	1 x 20A 2.5kA single pole circuit breaker
Spare	:	1 x 20A 2.5kA single pole circuit breaker
Supply to D1	:	1 x 20A 2.5kA single pole circuit breaker
Supply to Spare	:	1 x 20A 2.5kA single pole circuit breaker

3.7 SCHEDULE OF LIGHT FITTING POINTS

3.7.1 DB-1 Normal Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Switches	Luminaire Mounting
L1	1 - 9	F2	9	72	648	1XOS	In Ceiling
L2	1-1	B2	1	18	18	1XOS	In Ceiling
L2	2-4	F2	3	72	216	1XOS	In Ceiling
L2	5-5	F3	1	108	108	1XOS	In Ceiling
L2	6-6	F2	1	72	72	1XOS	In Ceiling
L3	6-7	B2	5	36	180	Daylight Switch	Against wall 2000mm above floor level

3.7.1 DB-1 Standby Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Switches	Luminaire Mounting
L1	1 - 6	F2	6	72	432	1XOS	In Ceiling
L2	1-7	F2	7	72	504	1XOS	In Ceiling

3.7.2 DB-2 Normal Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Switches	Luminaire Mounting
L1	1 - 6	F2	6	72	432	1XOS	In Ceiling
L2	1-8	F2	8	72	576	1XOS	In Ceiling
L3	1-6	B1	6	18	108	1XOS	In Ceiling

L4	1-8	B2	8	36	288	Daylight Switch	Against wall 2000mm above floor level
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3.7.3 DB-2 Standby Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Switches	Luminaire Mounting
L1	1 - 4	F2	4	72	288	1XOS	In Ceiling
L2	1-3	F2	3	72	216	1XOS	In Ceiling

3.8 SCHEDULE OF SOCKET OUTLET POINTS

3.8.1 DB-1

Normal Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each (W)	Load Total (W)	Mounting
P1	1-2	Socket Outlet	2.00	500.00	1000	Wall, 0,4m above floor level
P1	3-4	Socket Outlet	4.00	500.00	2000	Power Skirting
P2	1-3	Socket Outlet	5.00	500.00	2500	Wall, 1.2, above floor level
P3	1-3	Socket Outlet	6.00	500.00	3000	Power Skirting
P3	4-6	Socket Outlet	3.00	500.00	1500	Wall, 0,4m above floor level
D1	1-2	Dedicated Socket Outlet	2.00	500.00	1000	Power Skirting
D1	3-3	Dedicated Socket Outlet	1.00	500.00	500	Wall, 0,4m above floor level
D1	4-4	Dedicated Socket Outlet	1.00	500.00	500	Power Skirting

Standby Power

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each (W)	Load Total (W)	Luminaire Mounting
P1	1-4	Socket Outlet	8.00	500.00	4000	Power Skirting
P2	1-3	Socket Outlet	6.00	500.00	3000	Power Skirting
P3	1-3	Socket Outlet	6.00	500.00	3000	Power Skirting
P4	1-4	Socket Outlet	8.00	500.00	4000	Power Skirting
D1	1-3	Socket Outlet	3.00	500.00	1500	Power Skirting
D2	1-3	Socket Outlet	3.00	500.00	1500	Power Skirting
D3	1-3	Socket Outlet	3.00	500.00	1500	Power Skirting
D4	1-4	Socket Outlet	4.00	500.00	2000	Power Skirting

3.8.2 DB-2

NORMAL POWER

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Luminaire Mounting
P1	1-4	Socket Outlet	4.00	500.00	2000	Wall, 0,4m above floor level
P2	1-4	Socket Outlet	6.00	500.00	3000	Power Skirting
P3	1-2	Socket Outlet	4.00	500.00	2000	Power Skirting
P3	3-3	Socket Outlet	1.00	500.00	500	Wall, 0,4m above floor level
D1	1-3	Dedicated Socket Outlet	3.00	500.00	1500	Power Skirting

D2	1-3	Dedicated Socket Outlet	3.00	500.00	1500	Power Skirting
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STANDBY POWER

Circuit No.	Fitting No.	Type of Fitting	Quantity	Load Each	Load Total	Luminaire Mounting
P1	1-4	Socket Outlet	8.00	500.00	4000	Power Skirting
D1	1-4	Dedicated Socket Outlet	4.00	500.00	2000	Power Skirting

PART 5: ELECTRICAL WORK MATERIAL SCHEDULE

The Contractor shall complete the following schedules and submit them to the Representative/Agent within 21 days of the date of the acceptance of the tender.

The schedules will be scrutinised by the Representative/Agent and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

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

Item	Material	Make or trade name	Country of origin
1.	Distribution boards		
2.	Circuit breakers 1P, 2P, 3P		
3.	On load isolators without trips		
4.	Contactors 1P, 2P, 3P		
5.	Earth leakage relays 1 & 3 phase		
6.	H.R.C. fuse switches		
7.	Kilowatt hour meter		
8.	Current transformers		
9.	Voltmeter		
10.	Maximum demand ammeter		
11.	Daylight sensitive switch		
12.	Time switch		
13.	Conduit		
14.	Conduit boxes		
15.	Power skirting		
16.	Surface switches		
17.	Watertight switches		
18.	flush socket outlets		
19.	Surface socket outlets		
20.	watertight socket outlets		
21.	Fluorescent luminaires		
23.	Bulkhead fittings: Type F		
24.	Spherical fittings: Type G		
25.	Kitchen Equipment		
26.	Convection heater		
27.	Fan heater		
28.	Fans		
30.	PVCA cable		
31.	Cable trays		
32.	Back up Generator Set and Change over Panel		

ANNEXURE A

SCHEDULE OF IMPORTED MATERIALS AND EQUIPMENT TO BE COMPLETED BY TENDERER

<u>Item</u>	<u>Material/Equipment</u>	<u>Rand (R) (Excluding VAT)</u>
1		
2		
3		
4		
5		
6		

The Contractor shall list imported items, materials and/or equipment, which shall be excluded from the Contract Price Adjustment Provisions (if applicable) and shall be adjusted in terms of currency fluctuations only. Copies of the supplier's quotations for the items, materials or equipment (provided that such costs shall not be higher than the relevant contract rate as listed above) should be lodged with the Representative/Agent of the City within 60 (sixty) days from the date of acceptance of the tenders. No adjustment of the local VAT amount, nor the contractor's profit, discount, markup, handling costs, etc shall be allowed.

These net amounts will be adjusted as follows

FORMULA:

The net amount to be added to or deducted from the contract sum:

$$A = V \left(\frac{Z}{Y} - 1 \right)$$

A = the amount (R) of adjustment

V = the net amount (supplier's quotation) (R) of the imported item

Y = exchange rate at the closing date of tender submission

Z = exchange rate on the date of payment.

PARTICULARS OF ELECTRICAL CONTRACTOR

(To be completed by tenderers and submitted together with the tender form).

TENDER NO: _____ REFERENCE: _____

SERVICE: _____

NAME OF ELECTRICAL CONTRACTOR: _____

ADDRESS _____

ELECTRICAL CONTRACTOR'S REGISTRATION NUMBER AT THE ELECTRICAL CONTRACTING BOARD OF
S.A. _____

DATE

SIGNATURE OF TENDERER

MECHANICAL SPECIFICATIONS



public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

**Department of Public Works
Fire Security
Standard Technical Specification
For an
Automatic Fire Alarm Installation**

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1 INTRODUCTION

This Standard Technical Specification forms part of, and shall be read with, the Conditions of Contract, Supplementary Specification, schedules, drawings and other parts that form part of the tender/contract documents.

1.1 SCOPE

1.1.1 This Standard Technical Specification covers the general technical requirements for automatic fire detection systems and installations. The following aspects are covered:

- System requirements
- Equipment requirements
- Installation methods and materials
- Commissioning and handing over
- Documentation and drawings

1.1.2 The Supplementary Specification, drawings and schedules will take precedence over this Standard Technical Specification.

1.1.3 The Supplementary Specification, drawings and schedules shall be referred to for the specific requirements for the system.

1.2 DEFINITIONS

See also the definitions in EN 54-1 and BS 839-1.

Analogue Addressable System

In an analogue addressable system the control equipment receives analogue signals from the sensing devices in the system and knows with which sensing device it is communicating by reading the address of each sensing device.

Analogue

The term analogue refers to an electronic signal which can represent a large number (e.g. 256) of values. This signal can be in the form of a current level, pulses, frequency or any combination of these.

Addressable Device

A device is addressable if the control equipment can communicate with the device, or select such a device by sending an address to it.

Approved

Approved shall mean accepted by the Department for a specific installation. The Department does not keep a list of approved equipment, and equipment accepted for a specific installation does not necessarily imply approval or acceptance for another installation.

Access Levels

The levels of access applicable to the control panel. (These definitions modify those of BS 5838-4 in that level 4 is added and level 1 allows the silence function).

Level 1: No password or key:	Access by members of the general public. In addition the "silence" function shall be accessible or operational.
Level 2: Password or key:	Access by the person responsible for the system and trained on the system, and for system maintenance.
Level 3: Password or key:	Access by persons trained to reconfigure the system.
Level 4: Password or key:	<p>(a) Access by persons authorised by the system owner to allocate passwords to levels 2 and 3.</p> <p>(b) Access by persons trained and authorised by the manufacturer to repair, or to alter the firmware, thereby changing its basic mode of operation.</p>

Conventional System

A system is conventional if the control equipment determines the status of the zone wiring as follows:

Fault	:	low or no current
Normal	:	current within limits
Fire	:	high current
Short circuit	:	abnormally high current

Control Equipment. Unit. or Panel

The control equipment receives information from the field devices and displays information as described in BS 5839-4 or EN 54-2.

The following references have the same meaning:

- Control equipment
- Control unit
- Control panel
- Fire panel
- Fire alarm panel

Detector

That part of an automatic fire detection system which constantly, or at frequent intervals, monitors suitable phenomena, such as smoke, fire, heat, etc.

Detectors are also field devices.

1.3 STANDARDS AND REGULATIONS

See Addendum "A" for a list of the applicable standards. In all cases the most recent amendments, of the standards, shall apply.

- 1.3.1 The completed system and its components shall be in accordance with the following regulations:
- The wiring of premises (SABS 0142)
 - Occupational Health and Safety Act (Act 85, 1993)
 - Local municipal by-laws and regulations
 - Local fire regulations
 - Regulations of Telkom
 - Regulations of the local electrical and gas supply authorities
 - National Building Regulations Act No 103 of 1977 (SABS 0400)
- 1.3.2 The design of an automatic fire detection system, the equipment supplied for the system, and the installation of such equipment shall be in accordance with the Standards listed below. The equipment and components shall be deemed to have been tested and approved by a reputable and recognised international test laboratory to prove compliance with at least one or more of these Standards. Copies of test certificates shall be provided by tenderers with their tenders:

EN 54 : Components of automatic fire detection systems

BS 5445 : Components of automatic fire detection systems

BS 5839 : Fire detection and alarm systems for buildings

- 1.3.3 Material for which an SABS specification exists, shall be in accordance with such a specification, and shall bear the SABS mark.
- 1.3.4 All equipment used shall originate from suppliers which have been certified in accordance with SABS ISO 9001 (ISO 9001) or SABS ISO 9002 (ISO 9002) for quality assurance. Copies of certificates of approval shall be provided by the tenderers with their tenders.
- 1.3.5 Equipment designed to BS 5446, Fire systems for residential premises, or similar other standards, are not acceptable.

1.4 DESIGN

- 1.4.1 Any uncertainty which may exist in regard to the specification requirements shall be submitted to the Department in writing.
- 1.4.2 The requirements and design standards of the specification shall be adhered to unless otherwise approved by the Department or its authorised representative in writing.
- 1.4.3 Small items of equipment forming part of a system are not covered by this specification. However, the Department still requires that the total system shall comply with the highest standard of the design and fire protection practice.

1.5 MATERIALS

- 1.5.1 All materials used on the contract shall be new and of the very best of their respective types and kind.

- 1.5.2 No equipment or parts older than 2 years, at the commencement of the contract, shall be installed in this system.
- 1.5.3 All equipment and parts used in a particular system shall originate from one supplier as far as practicable.

2 SYSTEM REQUIREMENTS

2.1 REMOTE INDICATOR LIGHTS

- 2.1.1 Detectors mounted in hidden areas, or areas which may be kept locked for specific reasons, shall each be provided with a permanently marked remote indicator LED light mounted in a conspicuous position on the wall outside the area and close to the point of entry into such areas. The method and equipment used to mount the remote LED shall be acceptable to the Department.

2.2 SOFTWARE

- 2.2.1 The requirements stipulated hereunder in connection with the availability and the usage of software for computer based equipment (not fire control panels) which is to be supplied to the Department in terms of the contract, shall be adhered to:
 - a) Computer based systems shall not become unserviceable due to the loss of, or damage to software.
 - b) It shall be possible to reinstate software after maintenance or after possible damage to the software. Full back-ups must therefore be available on site.
- 2.2.2 Software shall be loaded when so required, even if the time at which the software is to be loaded, does not suit the supplier of the software.
- 2.2.3 The Department shall also be able to reload software on systems without the assistance of the supplier or contractor.
- 2.2.4 The Department will only be interested in reloading of software into a system for which the software was originally written, and not in the copying of software from one system to another.
- 2.2.5 Back-ups of software shall be supplied to the Department for future use.
- 2.2.6 The Department will use the original contractor or supplier of the system to reload software, whenever possible or practicable.

2.3 SCADA SOFTWARE

Software to be used for monitoring and reporting, or SCADA (Supervisory Control and Data Acquisition) application, shall comply with the following requirements:

- 2.3.1 The software shall be able to run on an MS-DOS based PC computer.
- 2.3.2 Software packages shall be approved by the Department for the installation.
- 2.3.3 The software shall not be system specific, i.e. it shall be compatible with a number of control panels on the market.

- 2.3.4 The software shall be available from a supplier other than the manufacturer of the equipment.
- 2.3.5 Upgrading of the software shall be possible at a later stage without changing the system configuration.
- 2.3.6 See Addendum "A" for some acceptable software.

2.4 FIRE ZONES

Devices shall be grouped into zones as follows, unless the zones are indicated on the drawings and/or Supplementary Specification:

- 2.4.1 A zone shall not have more than 20 field devices.
- 2.4.2 Each building shall have separate zones.
- 2.4.3 The roof space shall be on a separate zone or zones.
- 2.4.4 The floor area of a single zone shall not exceed 2000 m²
- 2.4.5 Every floor of a building larger than 300 m² shall be on a separate zone.
- 2.4.6 Every area enclosed by fire walls shall be on a separate zone.
- 2.4.7 In analogue addressable system, each zone shall be enclosed by 2 line isolators.

2.5 SPARE CAPACITY

- 2.5.1 20% spare capacity shall be allowed in the design of the control panels, loops, zones, etc.
- 2.5.2 The control panel shall have facilities to accommodate a further two detector circuits, additional to the required number of zones, without having to replace or add additional cabinets (extensions) to the control panel, unless specified otherwise.

3 EQUIPMENT REQUIREMENTS

3.1 QUALITY OF EQUIPMENT

Only equipment complying with the following shall be used:

- 3.1.1 The equipment required under any contract shall be of the latest manufactured equipment of its kind on the market.
- 3.1.2 The equipment shall preferably be manufactured in the RSA, and equivalent or replacement equipment shall also be available in the RSA.
- 3.1.3 Replacement units shall be available for the equipment and the complete maintenance of equipment shall be undertaken in the RSA.
- 3.1.4 Equipment shall have been installed in the RSA in a similar installation as the one specified in the Supplementary Specification and shall have operated reliably and satisfactorily for at least 1 year.
- 3.1.5 Equipment shall exist of completely enclosed units and the units shall be vermin-proof.

- 3.1.6 All items of equipment shall be fitted with nameplates containing information, such as serial numbers, model numbers, type numbers, manufacturer's name, etc. This information, together with the description of each and every piece of equipment, shall be listed in the Maintenance Manual.
- 3.1.7 All components and PC boards shall also be marked with type numbers and descriptions and this information shall be contained in the Maintenance Manual.
- 3.1.8 No equipment without detailed specifications and/or testing results will be allowed.
- 3.1.9 All components of the system offered and installed, shall be available for a period of at least 15 years from the onset of the contract. A certificate of guarantee to this effect shall be submitted by the supplier of such components.
- 3.2 FIRE ALARM PANELS (CONTROL PANELS)
 - 3.2.1 Control panels shall conform to BS 5839 part 4 or EN 54-2. See clause 1.3.2.
 - 3.2.2 A control panel shall be able to function as a stand-alone unit, together with its own power supplies, and shall not be dependent on external control equipment, such as computers, for functioning.
 - 3.2.3 Provision in the form of suitable terminals, connectors, or ports, shall be made on the control panel for the connection of peripheral equipment, such as computers, printers and interface equipment, to enable the accumulation of data generated by detectors and the control panel, to be used for future reference, or for the relaying thereof to remote monitor or control equipment.
 - 3.2.4 Control panels shall be constructed for minimum power usage in both battery and mains power supply modes.
 - 3.2.5 The control panel shall be of the wall mounted type, and shall also be suitable for mounting flush in a console, if so required in the Supplementary Specification.
 - 3.2.6 Battery charging equipment mounted in the control panel, or elsewhere, shall be mounted in such a way that 230 Volt terminals and wiring and other mains voltage equipment are shielded against accidental contact. All shields shall be marked "230 VOLT".
 - 3.2.7 No 230 Volt terminals shall be placed directly next to other terminals containing wiring at other voltages.
 - 3.2.8 Reset of the control panel shall only be possible at access level 2.
 - 3.2.9 Terminals shall be clearly grouped and marked with a label strip for identification, so as to simplify installation and connection of wires on site by installation personnel. All outgoing and incoming terminals, and all other equipment in the control panel, shall be suitably labelled to simplify maintenance and installation, and all panel mounted equipment shall likewise be labelled. Outgoing and incoming power and field wiring shall be individually, and correspondingly, numbered at each point of termination.

- 3.2.10 The control panel shall have knock-outs in the bottom plate thereof to terminate conduiting for all power cabling, and knock-outs in the top plate thereof to terminate conduiting for signal and other electronic cabling/wiring. Holes drilled on site for this purpose will not be acceptable.
- 3.2.11 All identification labels, as well as wire terminal numbers, shall be clearly shown on all wiring diagrams in the Maintenance Manual.
- 3.2.12 It shall be possible to silence the audible alarms without influencing the visual alarms or alarm transmissions to the Fire Brigade. This shall be possible at access level 1.

3.3 CONVENTIONAL FIRE ALARM PANELS (CONTROL PANELS)

3.3.1 Conventional Control panels shall be conformed to BS 5839-4 or EN 54-2. See clause 1.3.2.

3.3.2 The control panel shall be suitable to operate in conjunction with conventional detector heads or detector bases.

3.3.3 The control panel shall further have the facilities to execute the following functions:

- a) Transmission of a general fire alarm to the Fire Brigade. Transmitting equipment shall however not be supplied with the control panel unless specifically specified in the Supplementary Specification.
- b) Switching off of air conditioning equipment in case of a general fire alarm.
- c) Closing of dampers over ventilation openings in case of a general fire alarm.
- d) The connection of an external repeater panel for remote indication of fire and fault alarms.
- e) A maintenance mode or "one man test facility" for routine testing shall be possible where the control panel resets a fault or alarm condition a short time after the event. This will allow easy testing of the field devices. The control panel shall give a warning when it is in this mode.

3.4 ANALOGUE ADDRESSABLE FIRE ALARM PANELS (CONTROL PANELS)

3.4.1 Analogue Addressable Control panels shall conform to BS 5839-4 or EN 54-2. See clause 1.3.2.

3.4.2 Type of System

- a) An analogue addressable system consists of a control panel connected to analogue addressable field devices. The control panel continuously monitors a number of parameters of the field devices, makes decisions and takes actions based on the information received.
- b) Sensing devices shall not switch into an alarm state. All decisions shall be taken by the control panel only.
- c) To enable the system to be tailored to suit the protected building and to permit future changes, the alarm management shall be configurable from the control panel via a keypad. This configuration shall be maintained under power failure conditions in non-volatile memory.
- d) The front panel of the control panel shall comprise a keyboard, alpha numeric display, text and indicator LEDs, etc. The occurrence and location of an event shall be displayed on the screen.

- e) Outputs for communicating with devices such as remote text display units, graphic display units, computers, printers and intelligent mimic panels shall be provided where necessary.
- f) Control panels shall incorporate facilities for operating as stand-alone units, or as part of a network with full communication capability.
- g) Control panels shall be supplied complete with printout facilities. Only connections (a printer port and 24 Vdc power connector) for a portable printer shall be required, unless otherwise specified.
- h) The control panel shall further have the facilities to execute the following functions:
 - Transmission of a general fire alarm to the Fire Brigade. Transmitting equipment shall not be supplied with the control panel unless specifically specified in the Supplementary Specification.
 - Monitored switching off of air conditioning equipment in case of a general fire alarm.
 - Monitored closing of dampers over ventilation openings, switching on of stairwell pressure fans, etc. in case of a general fire alarm.
 - Monitored alarm outputs, e.g. sirens.
 - Monitored outputs and inputs for gas control panels.
- i) Consecutive alarms shall be stored by the control panel in chronological order and shall have the ability to determine the priority order of alarms by means of repetitive receipt of data from detectors.
- j) The transmission of all data shall be via a two-wire system, which shall carry both the supply voltage and the data.
- k) The type of wire or cable used shall be suitable for the speed of data transmission so that signals can be carried over without losses or corrupted data. Wiring shall meet the requirements of the detection system manufacturer, which requirements shall be published in a formal wiring specification.

3.4.3 Ring (loop) Wiring

- a) Wiring shall to be arranged in a return loop (ring), in such a manner that, in the event of an open circuit or a short occurring on the line, the control panel communicates with the detectors from both sides of the loop.
- b) The arrangement shall be such that during an open or short circuit no more than 20 detectors shall be deactivated. To enable this, line isolators shall be provided on the line on each side of each zone.

3.4.4 Master Control Panel

- a) The purpose of a master control panel will be to communicate with more than one satellite fire control panel, to simplify the central monitoring and control of the other satellite panels.
- b) A master control panel will be required when two or more control panels are to be linked. This master control panel shall conform to all the requirements of the other control panels and shall be of the same manufacture as the other control panels.
- c) The master control panel shall have its own battery back-up system.
- d) All communication to computers, the Fire Brigade, etc. shall be handled by the master control panel.

- e) All communication between satellite and central panels, as well as between satellite panels, shall utilise a protocol which verifies the receipt and accuracy of each message sent. Receipt of all messages shall be acknowledged by the receiving panel, and messages shall be retransmitted by the sending panel in the event of failure to receive such an acknowledgement. An industry standard method, such as a CRC check sum technique, or similar, shall be used to verify the accuracy of each message received. Messages received incorrectly shall be retransmitted by the sending panel. Retransmission shall continue until the receiving panel acknowledges receipt of a correctly received message. If, after a number of transmission attempts, the transmitting panel still does not receive an acknowledgement from the receiving panel, it shall register a fault signal.

3.4.5 Remote Display/Mimic Panels

- a) Remote display/mimic panels, or fireman's panels, shall communicate with the control panel. No "hard wiring" to these panels will be allowed.
- b) Remote panels shall function completely independently of the control panels, and shall not affect the functioning of the control panels.

3.4.6 Programmability

- a) The control panel shall be fully programmable through the keypad on the front of the panel, and through an RS 232 port by using a separate computer.
- b) It shall be possible to make back-ups of the programmed data onto separate magnetic media by means of an external computer linked to an RS 232 port on the control panel.

3.4.7 Communications

- a) Communications with other equipment, such as computers, shall be achieved through RS 232 ports using a fully documented public domain protocol. The protocol documentation shall also be included in the Maintenance Manual so that it will be possible for another party to communicate with the control panel without the approval of the control panel manufacturer.
- b) All communications with other equipment shall be bi-directional, and at least the functions and displays available on the front of the control panel shall be possible through the communications port. Programming of the control panel by means of other equipment is not required (except as described earlier).

3.4.8 Local Printer

- a) A printer shall be available as an option.
- b) The printer shall provide a hard copy of the following:
 - Alarms
 - Faults
 - Maintenance data
 - Control panel operations
 - Outputs Operated
 - Configuration report
 - Status report
- c) The printer shall print out the following information for each alarm or signal:
 - Type of Alarm or Fault
 - Device Type
 - Device Number
 - Zone Number
 - User message

- Day
- Date
- Time
- d) It shall be possible to set the printer to print out alarms, faults, control panel operations, and outputs operated, either individually or- in any combination.

3.4.9 Device Addresses

- a) Each sensing device shall be numbered individually and uniquely to correspond with its address on the control panel.
- b) If a detector head is moved from its base to another base, the address of such a detector shall remain at its original location indicated on the control panel.
- c) The address of each device shall be manually set to the desired value.

3.4.10 Display

- a) The control panel shall be equipped with an alphanumeric display capable of displaying at least 80 characters.
- b) A message of at least 40 characters long per device shall be programmable and displayable on the display.
- c) The display of the following reports/information shall be possible:
 - Device information
 - List of devices isolated
 - List of devices that need maintenance
 - List of the most recent events
 - I/O mapping
 - Device messages

With reference to 3.4.9(0), the following will also be acceptable to the Department:

"If a detector head. is moved from. its base to another base, and this result, in the address being moved to another zone, then an alarm shall be generated in the control panel. This alarm can only be cancelled by replacing the head in its original zone."

3.4.11 Device Status

Addressable devices shall be polled by the control panel and the equipment condition and analogue status shall be read and stored in the control panel.

The varying status of each device shall be assessed by software algorithms and the control panel shall indicate the following conditions:

- a) Analogue Detectors
 - Detector removed
 - Incorrect type of Detector
 - Detector failed
 - Detector contaminated
 - Pre-alarm
 - Fire Alarm
 - Detector healthy

- b) Interface to contacts
 - Fire Alarm
 - Interface removed
 - Interface faulty
 - Contact wiring open circuit
 - Contact wiring short circuit
 - Contacts normal

3.5 POWER SUPPLY

- 3.5.1 Power supplies shall conform to BS 5839-4 or EN 54-4. See clause 1.3.2.
- 3.5.2 The Power pack of the control panel shall be able to accept an incoming 230 Volt single phase supply and shall be equipped with transformers, rectifiers, inverters, condensers and integrated circuits for the supply of stabilised power to the control panel equipment and detector circuits.
- 3.5.3 The power supply unit shall be equipped with over voltage protection and spike arresters to prevent damage to the equipment by lightning or other spikes, or damage due to over voltages.
- 3.5.4 The battery charger shall be able to deliver the full charging current to discharged batteries, and thereafter the charger shall automatically vary the charging current to the batteries as may be required by battery voltage conditions.
- 3.5.5 Batteries shall not be subjected to overcharging.
- 3.5.6 The battery charger shall be protected against reverse polarity and short circuits on the DC supply side.
- 3.5.7 The power pack of the control panel shall regulate the supply voltage to detectors so that detectors or bases are operated in their nominal supply voltage range.
- 3.5.8 Upon loss of mains power, the power supply unit shall automatically revert to battery power, where after the system shall remain fully operational for a period of 24 hours and shall be able to operate the total alarm load for a further period of 1 hour. The unit shall automatically revert back to mains power upon mains power restoration and manual resetting of the unit shall not be necessary.
- 3.5.9 The power supply shall be equipped with the following indications on the front of the unit:
 - a) "Mains On" : green LED
 - b) "Charger Fault" : amber LED
- 3.5.10 Batteries shall be mounted in a separate ventilated pad lockable cubicle. Batteries shall be mounted in such a way that contamination of other equipment by batteries cannot take place. Batteries shall be in a special plastic container to contain any possible spillage.
- 3.5.11 Any supply fault, charging fault or low battery voltage shall be transmitted to the control panel so that an alarm can be generated.

3.5.12 No fuses or switches shall be accessible on the front of the power supply unit without opening the door.

3.5.13 Batteries shall be of the sealed lead acid type and the sizes of the batteries to be used shall be indicated on a label in the battery cubicle.

3.5.14 Batteries shall be charged to 85% of their capacity within 24 hours.

3.6 DETECTORS AND DETECTOR BASES IN GENERAL

3.6.1 Ionization smoke detectors, optical smoke detectors and heat detectors are covered under this heading.

3.6.2 The detector base shall be such that the detector head is held firmly in the base by means of an insert and twist (bayonet) action.

3.6.3 Reverse polarity or faulty circuit wiring shall not cause damage to the detector head or base.

3.6.4 The detector base shall be suitable for surface mounting on a ceiling and shall fit on a 65 mm² standard C-type electrical outlet box with fixing holes at 50 mm centres. Fixing lugs or holes in the base shall be substantial and shall withstand repeated insertion and removal of the head without damage.

3.6.5 The base shall be provided with wire terminals suitable for wire sizes up to 1,5 mm².

3.6.6 The wiring terminals of the unit shall be able to accept wiring lugs and shall be of the screw and clamp plate type to hold a lug firmly pressed against its contact surface. Spring loaded push-in contacts will not be acceptable.

3.6.7 Terminals for circuit wiring shall be clearly marked.

3.6.8 The base shall be suitable for the connection of a remote indicator LED.

3.6.9 The detector or base shall be fitted with a local indicating LED, which shall flash/illuminate under an alarm condition.

3.7 CONVENTIONAL DETECTORS AND DETECTOR BASES

3.7.1 Conventional detectors and bases shall conform to BS 5445 or EN 54 or BS 5839. See clause 1.3.2.

3.7.2 It shall be possible to reset detectors from an alarm condition to normal by disconnecting the supply voltage to the unit.

3.7.3 Upon removal of a detector head, the control panel shall indicate that a head has been removed and also the zone where the head has been removed.

3.7.4 The base at end of circuit, in the case of radial circuits, shall be suitable to accept a termination resistor/circuit.

3.8 ANALOGUE ADDRESSABLE DETECTORS AND BASES

3.8.1 Analogue addressable detectors and bases shall conform to BS 5445 or EN 54 or BS 5839. See clause 1.3.2.

- 3.8.2 The removal of a detector from the base shall not affect the operation of other detectors on the line.
- 3.8.3 The control panel shall indicate when a detector head has been removed and also the address where it has been removed. Likewise, it shall indicate when a wrong type of head is inserted in a base, as well as its address.
- 3.8.4 The detector shall be suitable to operate on a two-wire system carrying both power and signals for the operation of each and every detector in the system.
- 3.8.5 The detector shall be able to receive, and decode signals transmitted to it by the control panel. Upon receipt of a signal directed at its particular address, the detector shall transmit data back to the control panel for processing and storage thereof by the control panel. Such data transmitted shall represent the analogue values present in the electronic circuits of the detector head/base combination at that point of time.
- 3.8.6 The detector, when "addressed" by the control panel, shall transmit data to enable the control panel to deduce the following basic information:
- a) The type of head generating the data (i.e. ionisation, optical, heat, etc.)
 - b) The address of the detector
 - c) The reference limits of calibration of the detector
 - d) The % visible or invisible combustion particles per meter present in the detector chambers at that point in time, or the temperature measured at the detector.
- 3.9 MANUAL CALL POINTS (BREAK GLASS UNITS)
- 3.9.1 Manual call point units shall be in accordance with BS 5839-2, except that it shall be resettable i.e. the front face of the unit shall not be a frangible element.
- 3.9.2 The unit shall be finished in RED.
- 3.9.3 The unit shall be large enough to cover a 65 mm² conduit draw box when the unit is surface mounted.
- 3.9.4 Flush mounted units shall be provided with a special flush mounting box, which can accept electrical conduit terminations.
- 3.9.5 Surface mounted units shall be deep enough to terminate 20 mm² conduits into the unit, and shall be mounted solidly on the wall by means of their back plates.
- 3.9.6 Addressable manual call point units shall be fitted with an address card, which will enable communication with the control panel.
- 3.9.7 The wiring terminals of the unit shall be able to accept wiring lugs, and shall be of the screw and clamp plate type to hold a lug firmly pressed against its contact surface. Spring loaded push-in contacts will not be acceptable.
- 3.10 AUDIBLE ALARMS (SOUNDERS)
- 3.10.1 Sounders shall conform to BS 5839 part 1 and part 4.
- 3.10.2 The sounders shall operate off a 24 volt DC supply. Electronic sounders will be preferable.

3.10.3 The sound level for sounders and audible alarms shall be as follows:

- Audible indications (e.g. in the control panel) • 65 dB(A) at 1 m
- Evacuation sounders - at least 103 dB(A) at 1 m
- Outdoor sirens - 112 dB(A) at 1 m

3.10.4 The frequency, or major frequency in a two tone alarm, shall lie in the range of 500 to 1000 Hz.

3.11 FIRE BRIGADE SIGNALLING FACILITIES

3.11.1 The transmitting equipment, when required for the transmission of a general fire alarm to the local Fire Brigade, shall form an integral part of the fire control panel.

3.11.2 The transmitting equipment shall be fully compatible with the receiving equipment already installed at the Fire Brigade. Any facilities necessary to accomplish this compatibility shall be included in the transmitting equipment.

3.11.3 The output to the Fire Brigade shall be a monitored output.

3.11.4 The transmitting equipment shall not be supplied, unless specifically specified in the Supplementary Specification.

3.11.5 Even if the transmitting equipment is not specified in the Supplementary Specification, an appropriate port, or ports, shall be provided on the control panel for connecting any future transmitting equipment.

3.12 FLAME DETECTORS

All flame detectors designed to detect hydrocarbon fires shall comply with at least the following requirements, in addition to the specified standards:

3.12.1 Flaming fires shall be detected by the flame detector by detecting infra-red and/or ultraviolet radiation emitted from the flames.

3.12.2 Detectors that monitor only ultraviolet radiation will not be acceptable.

3.12.3 At least two different radiation frequencies shall be detected and analysed by the flame detector in order to increase the reliability of the detector in the presence of the following:

- Artificial light sources
- Sunlight
- Hot vibrating bodies
- Arc welding
- Lightning

3.12.4 Flame detectors shall be fitted with automatic self-test circuits which will simulate a fire condition by generating artificial radiation through the lenses. Dirty lenses shall, therefore, also generate a fault.

3.12.5 The flame detector shall be able to detect a 0,1 m² petrol fire at a distance of 14 m.

3.12.6 Detection integration time shall be adjustable up to 30 seconds.

3.12.7 The detector shall have at least a 50% sensitivity at a horizontal angle of 45° from the centre line.

4 INSTALLATION METHODS AND MATERIAL

4.1 DEVICES

4.1.1 The base of a detector shall always be mounted in the area which it protects so that the indicator LED can be seen from the doorway which normally provides access to the room. The indicator LED shall face towards the main entrance or lobby or side of main approach in the passage. See also clause 2.1.1.

4.1.2 Bases shall be provided with dust caps to protect the base against dust and dirt whilst construction work is in progress. This is only applicable to bases that contain electronic components.

4.1.3 Surface mounted units shall be solidly fixed to the wall by means of their back plates.

4.1.4 Manual call point units shall be mounted at 1,4m above finished floor level, unless otherwise specified in the Supplementary Specification.

4.2 CIRCUIT WIRING

4.2.1 The following methods are acceptable for the wiring of detector circuits:

- a) Steel conduit and conduit accessories cast into, or built into, the building structure and wired with insulated conductors of a type which complies with the requirements of this specification.
- b) Steel conduit and conduit accessories, surface mounted in building structures and wired with insulated conductors of a type approved by the Department.

4.2.2 Wires and cables may also be installed in wiring trunking and armoured cable may also be installed on cable racks, all as specified further herein.

4.2.3 Cables with stranded wires shall be terminated by the crimping on of lugs. No stranded wires without lugs will be accepted.

4.2.4 T-Junctions shall be made only in approved draw boxes at detector outlets.

4.2.5 Separate wiring installations for detector circuits, evacuation communication wiring, audible alarms, electrical lock wiring, card reader wiring, AC and DC power circuits, remote control circuits and monitor wiring, video cables, computer cables, etc., shall all be done in separate conduit- or trunking installations. Detector wiring shall not be installed together with any other wires in wire-ways.

4.2.6 Detector wiring may share the same draw boxes or expansion joint boxes with other fire fighting system wiring or security system wiring, but the boxes shall be subdivided by means of steel plates.

4.2.7 All electrical work and wiring associated with "FIRE DETECTION SYSTEMS", shall be carried out in compliance with the requirements of the "STANDARD SPECIFICATION FOR ELECTRICAL EQUIPMENT AND INSTALLATIONS FOR MECHANICAL SERVICES" of the Department.

4.2.8 No wiring shall be installed vertically for more than 1,5 m. Cables installed over vertical distances of more than 1,5 m, shall be properly supported at intervals of less than 1,5 m.

4.3 ARMOURED CABLES

4.3.1 Armoured cables shall be used in sleeves, in cable tunnels and on cable racks or trays.

4.3.2 Armoured cables shall have twisted pairs and/or screens if so required in the wiring specification of the manufacturer of the equipment.

4.4 CONDUIT AND CONDUIT ACCESSORIES

4.4.1 The Contractor for the fire detection system shall be responsible for the supply and installation of all conduits, conduit accessories, wiring trunking and cable trays, as may be necessary or required for the system, unless specified otherwise in the Supplementary Specification.

4.4.2 Conduit and conduit accessories shall be cast in, or built into, the building structure in new buildings. No surface mounting will be acceptable in new buildings or structures.

4.4.3 Surface mounted conduit and conduit accessory work will be allowed only in existing buildings.

4.4.4 Steel conduit and conduit accessories surface mounted on building structures, steelwork and woodwork, shall be done neatly and in straight lines and shall be saddled at 1 m centres with spacer saddles.

4.4.5 M4 machine screws shall be used for fixing of spacer saddles onto steelwork. Suitable holes shall be drilled and tapped in the steelwork for this purpose.

4.4.6 Steel conduit and conduit accessories, surface mounted in roof spaces of buildings or structures with pitch roofs, shall follow the roof structural elements.

4.4.7 The quality of materials and the methods of installation of steel conduit and conduit accessories shall be carried out in compliance with the requirements of the "STANDARD SPECIFICATION FOR ELECTRICAL EQUIPMENT AND INSTALLATIONS FOR MECHANICAL SERVICES" of the Department and SABS 0142.

4.4.8 Conduit installations shall be done in such a way that detector circuit wiring can be done without interruption and without T-joints.

4.4.9 Round draw boxes for detectors shall be mounted hard against the ceiling in the case of false ceilings or ceilings of pitch roof buildings and detector bases shall be mounted against boxes so that no open wiring occurs anywhere in a conduit and wiring system.

4.4.10 No sprague tubing or PVC conduits shall be used in detector circuit wiring systems. Only flexible conduit which is not of the spiral type may be used in special applications.

4.5 WIRING TRUNKING

4.5.1 The quality of materials and the methods of installation of wiring trunking shall be carried out in compliance with the requirements of the "STANDARD SPECIFICATION FOR ELECTRICAL EQUIPMENT AND INSTALLATIONS FOR MECHANICAL SERVICES" of the Department.

- 4.5.2 Trunking shall be fitted throughout with covers.
- 4.5.3 PVC wiring trunking may be used only to house detector circuit wiring, but then only as specified in the section "CIRCUIT WIRING" in the Specification and only with the type of cable as specified.
- 4.5.4 No wiring trunking may be used in microfilm vaults and in high risk areas such as fuel, oil, tyre, paint, wood, paper, cardboard box storage areas, record rooms, and vaults.

4.6 CABLE RACKS AND LADDERS

- 4.6.1 The quality of materials and the methods of installation of cable racks and ladders shall be carried out in compliance with the requirements of the "STANDARD SPECIFICATION FOR ELECTRICAL EQUIPMENT AND INSTALLATIONS FOR MECHANICAL SERVICES" of the Department.
- 4.6.2 No cable racks and ladders may be used in microfilm vaults and in high risk areas such as fuel, oil, tyre, paint, wood, paper, cardboard box storage areas, record rooms, and vaults.
- 4.6.3 Armoured cable may be mounted on cable racks and ladders.
- 4.6.4 The type of wire or cable used shall be suitable for the speed of data transmission, so that signals, can be carried over without losses or corrupted data.

4.7 LIGHTNING AND SURGE PROTECTION

- 4.7.1 All wiring going out from and coming into any building shall be fitted with suitable surge absorbers, which have been approved by the manufacturer of the equipment. This includes 230 V supplies, telephone lines and detector lines.
- 4.7.2 Special attention shall be given to the proper connecting and earthing of the system.

5 COMMISSIONING OF SYSTEMS

5.1 COMMISSIONING AND HANDING OVER TESTS

- 5.1.1 The testing of the system shall be done in the presence and to the satisfaction of an authorised representative of the Department.
- 5.1.2 Tests shall include simulation of fire conditions in each zone to prove the efficiency of all aspects of the system to the satisfaction of the Department.
- 5.1.3 All equipment, material, etc., which may be necessary for these tests shall be supplied by the Contractor, including a suitable smoke generator.
- 5.1.4 The Contractor shall do his own complete commissioning tests before the actual first take-over tests are done. This is to satisfy himself that everything is working and is in accordance with the specification.

6 DOCUMENTATION, DRAWINGS AND MAINTENANCE

6.1 BLOCK PLAN

- 6.1.1 An approved block plan, indicating the zones and appropriate zone reference numbers, shall be installed at all control panels and repeater panels.

- 6.1.2 The block plan shall be discussed with the Fire Prevention Officer of the Department before manufacturing takes place.
- 6.1.3 The block plan shall have a professional appearance. Text shall be in English and at least one other official language to be decided in conjunction with the Department and the User Department. A freehand drawing or badly finished plan will not be acceptable.
- 6.1.4 The block plan shall clearly indicate the position of the zone in which a fire has started, when read together with the displays and indications on the control panel.
- 6.1.5 Non-fading material shall be used for the artwork. The block plan shall be mounted in a frame behind glass, or shall be covered with a transparent stick-on material, to protect the artwork.
- 6.1.6 The block plan shall be mounted in an approved position at the control panel.
- 6.1.7 For an addressable system, the addresses of all field devices shall be shown on the block plan.
- 6.1.8 The exact requirements of the panel and block plan will be specified in the Supplementary Specification.

6.2 TRAINING PROGRAM

- 6.2.1 Tenderers shall allow in their tender prices for a training course, to train on site at least four (4) persons, as nominated by the User Department from his own operating personnel. The training shall be adequate for the installation, to ensure that operating staff fully understand the system. During this period, the personnel shall be made fully conversant with the operation of, and daily maintenance required for, each item of equipment of the system. The training, especially on computer equipment and control panels, shall be of such a standard that will enable the User Department to carry out his own in-house training of other personnel.
- 6.2.2 The training course shall start only after first take-over inspection of the system.
- 6.2.3 The training course shall be carried out in the language medium as chosen by the User Department.
- 6.2.4 The Operating Manual of the contract shall include a full description of the contents of the training course, referred to in clause 6.2.1. above.

6.3 OPERATING INSTRUCTIONS

- 6.3.1 Instruction cards, indicating clearly the procedure to be followed in the event of a "FIRE" alarm, shall be supplied and framed under Perspex in approved teak or non-ferrous material frames. The instruction cards shall be in English and at least one other official language to be decided in conjunction with the Department and the User Department. The frame shall be neatly mounted on the walls alongside the control panel and external indicator panels respectively, where they can be clearly read.
- 6.3.2 In the case of the control panel, the instruction card shall also state clearly the procedure to be followed in the event of a "FAULT" alarm.

6.4 OPERATING MANUALS

6.4.1 Three complete sets of the Operating Manuals, in English, shall be provided to be used by the User's personnel who will operate the system. The Operating Manuals shall be in the form of plastic display binders, and shall contain the following:

- a) Complete operating instructions.
- b) Action to be taken during "FAULT" and "FIRE" conditions.
- c) Names, telephone and facsimile numbers, and addresses of contact personnel.
- d) Operating procedures, as contemplated in clause 6.3 hereof.

6.4.2 The Operating Manuals shall contain no technical information. This shall be included in the Maintenance Manuals.

6.4.3 A concept copy of the Operating Manual(s) shall be submitted to the Department's consultant, at least two (2) weeks prior to the anticipated first hand-over of the installation, for scrutiny and possible amendment.

6.4.4 First delivery of an installation will not be taken unless acceptable manuals are submitted prior to the first hand-over inspections.

6.5 MAINTENANCE MANUALS

6.5.1 Three complete sets of the Maintenance Manuals, in English only, shall be provided. The manuals shall contain the following:

- a) A complete set of "as built" drawings of the contract, in a form acceptable to the Department. No drawings shall be smaller than A4 size. Large drawings shall be reduced to A3 or A4 size for inclusion in the manuals, provided they remain legible.
- b) A complete set of "machine shop" drawings of the contract, showing dimensions, finishes, general arrangements of panels, consoles, computer assemblies, etc.
- c) A complete set of wiring diagram drawings of all equipment, showing component identification, types and values.
- d) block diagram drawing for each piece of equipment containing more than one PC board, showing the interconnections of boards, complete with connector and plug numbers, and PC board identification markings.
- e) A complete list of all equipment containing the following information:
 - i) Name of the equipment (or description thereof).
 - ii) Serial number of equipment.
 - iii) Type number of equipment.
 - iv) Manufacturer of equipment.
 - v) Equivalent replacement model of equipment (where applicable).
 - vi) Names, addresses, telephone and facsimile numbers of firms supplying equipment.
- f) A complete and comprehensive description of the operation of the system and of each individual piece of equipment.
- g) A complete and comprehensive description of the maintenance of the system and of each individual piece of equipment in respect of daily, weekly, monthly or annual maintenance.
- h) Advanced technical information of the system may also be bound into the Maintenance Manuals as additional information. Any literature not in the English language, shall have the English translation attached.

6.5.2 A concept copy of the Maintenance Manual(s) shall be submitted to the Department's consultant, at least two (2) weeks prior to the anticipated first hand-over of the installation for scrutinizing and possible amending.

6.5.3 First delivery of the installation will not be taken, unless acceptable manuals are submitted prior to the first hand-over inspections.

6.6 MAINTENANCE

6.6.1 Maintenance and Guarantee

- a) The tenderer for this contract shall allow in his tender price for the maintenance of the complete installation for a period of twelve (12) months, starting from the date of the first take-over of the contract by the Department.
- b) It is a specific requirement of this contract that the Contractor shall allow for monthly inspection visits during the 12 month maintenance period, and that he shall submit full reports for each monthly visit. The reports shall contain the status of the system as well as the faults which occurred on the system during the previous month.
- c) A log book shall be supplied by the Contractor. The log book shall be kept on site in charge of the responsible person appointed by the User Department for this purpose. The Contractor shall complete the log book, showing all maintenance done by him, as well as repairs of faults which may have occurred.
- d) The log book shall also contain the following information:
 - Date
 - Type of fault reported and by whom
 - Date of fault report
 - Work done
 - Name and signature of person carrying out the work
 - Name and signature of the person in charge of the site.
- e) The log book shall be filled in in TRIPLICATE. One copy shall accompany the monthly report to the Regional Representative of the Department, one copy shall be for the Contractor's own use, whilst the third copy shall remain in the logbook as a record.
- f) The Contractor shall also allow for a complete maintenance service of the system after every six (6) months, i.e. two such services in the twelve (12) month guarantee period. The logbook shall also be filled in and reports submitted for these services to the Regional Representative of the Department.
- g) The reports shall be submitted to the Department within seven (7) days of the service. Serious faults shall immediately be reported to the Regional Representative and the Consulting Engineer by telephone.
- h) No maintenance or repair work shall be done on site without the knowledge, and approval, of the responsible person in charge on the site.

6.6.2 Maintenance Program

- a) The Contractor shall draw up a complete maintenance program document for the system, which shall enable the User Department to maintain the system on a daily basis. This program must be inserted into both the Operating Manuals and Maintenance Manuals.
- b) This document shall be in English and at least one other official language to be decided in conjunction with the Department and User Department, and shall indicate clearly the steps to be taken to prevent failure of the system.
- c) The normal maintenance, which is, for example, necessary for the maintenance of batteries in the system, shall be clearly indicated in the documentation in a separate section.

ADDENDUM 'A'

TO THE STANDARD TECHNICAL SPECIFICATION FOR AN AUTOMATIC FIRE ALARM INSTALLATION F.P.O/82/5E DATED JUNE 1994

This addendum contains a list of applicable standards and other information that may change. The most recent amendments and publication is applicable. Please verify that this is the latest revision.

A1. APPLICABLE STANDARDS (NOT A COMPLETE LIST)

EN 54 - COMPONENTS OF AUTOMATIC FIRE DETECTION SYSTEMS.

or

BS 5445

Part 1 Introduction

Part 2 Control and indicating equipment (draft)

Part 4 Power supplies (draft)

Part 5 Heat sensitive detectors - point detectors containing a static element.

Part 6 Heat sensitive detectors - point detectors, rate of rise only.

Part 7 Specification for point type smoke detectors using scattered light, transmitted light or ionization.

Part 8 Specification for high temperature heat detectors.

Part 9 Methods of test of sensitivity to fire.

BS5839 - FIRE DETECTION AND ALARM SYSTEMS FOR BUILDINGS

Part 1 Code of practice for system design, installation and servicing;

Part 2 Specification for manual call points.

Part 3 Specification for automatic release mechanisms for certain fire protection equipment.

Part 4 Specification for control and indicating equipment.

Part 5 Specification for optical beam Smoke detectors

SABS 0400: 1990 THE APPLICATION OF THE NATIONAL BUILDING REGULATIONS.

SABS ISO 9000 to 4 QUALITY MANAGEMENT AND QUALITY ASSURANCE STANDARDS

SABS ISO 9000 Guidelines for selection and use

SABS ISO 9001	Model for quality assurance in design/development, production, installation and servicing
SABS ISO 9002	Model for quality assurance in production and installation.
SABS ISO 9003	Model for quality assurance in final inspection and test.
SABS ISO 9004	Guidelines

A2. SCADA SOFTWARE (REFER TO CLAUSE 2.3)

Monitoring software shall be similar and equivalent to the following. Other software shall be submitted for approval.

- a) Turbo link
- b) Ziton (ZG 100)
- c) Genesis
- d) DMacs

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public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

Department of Public Works Standard Specification For Security Equipment

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1 S100 CARD READERS

1.1 S101 Single Reader System (Off-line)

The card reader shall be of the sweep-through type and shall be suitable to operate with the sweep-slot in the vertical plane when mounted on a vertical surface or with the slot in the direction of flow of traffic when mounted on a horizontal surface. Also, refer to clauses S111 and S112 hereof for mounting of readers. Where the reader is mounted with the slot in the vertical position it shall be mounted to allow sweep-through of the card from top to bottom. The reader shall also be manufactured so that, when mounted, the slot faces towards the right hand side or the card user when facing the reader, in order that it should not be necessary for the users to twist his/her wrist to sweep the card.

The reader shall also be fitted with LED lamps, indicating the "ready" status of the reader(YELLOW), acceptance of a card(GREEN) or rejection of the card(RED). A buzzer fitted to or at the reader shall, in conjunction with the GREEN lamp, sound a short, muffled yet clearly audible tone when a card is accepted, or shall, in conjunction with the RED lamp, sound an intermittent, equally audible double alarm tone when the card is rejected.

The sensing and pulse transmission equipment of the reader shall be of solid state design and mechanical or electromechanical readers will not be acceptable. Readers may be combined with the memory and processing equipment as a unit or supplied separately with remotely placed memory and processing equipment.

The reader shall be suitable for the off-line mode operation i.e. stand-alone operation, or as a reader, which can communicate, with other readers or with a central computer system. In such a case the processing section of the reader shall have an RS 232 input/output port for ASCII serial data transmission.

The card reader and memory/processor combination shall be suitable to accommodate the data of at least 300 cards in the off-line mode.

The card reader shall further be of a type which operates in conjunction with the card technology specified in the Supplementary Specification.

The housing of the card reader shall be manufactured from cast alloy or impact resistant non-metallic material and the housing shall be fixed to the mounting base of the reader by means of tamper-proof screws or similar methods of fixing.

The slot of the reader shall be manufactured from smooth hard-wearing material which shall not damage cards even over long periods of operation. Should excessive wear of the slot start affecting the accuracy of the reader, it shall further be possible to easily replace the slot section only.

The card reader and/or its associated equipment shall preferably be manufactured in modular form to simplify maintenance and all in/out terminals for wiring shall be clearly marked to indicate the function thereof.

The reader shall be supplied with switching facilities for an electrically operated door lock, and shall be able to switch 24 VAC or 24 VDC, 5 Amp, continuous duty.

The memory and processor section of the reader shall only be programmable either by means of an external processor unit via plug-in facilities or by means of installed factory programmed EPROMS only. All installation equipment and programming device shall be removed from site after the system has been installed and all data loaded. The memory of the system shall preferably be non-volatile that will not be damaged by power failures, or shall alternatively be backed up by lithium or other acceptable types of batteries to ensure maintenance of the system memory for a period of at least 24 hours, unless otherwise specified, in case of power failures.

Preference will be given to permanent memories in stand-alone reader applications and to standard CPU components.

The data system for a particular reader and cards shall not be suitable for operation with foreign cards or with cards of the same type which may be in use in another project or similar project or with a card system employed in the same . project for another application,* unless specified as such.

The data system shall not be re-programmable with a "Master Card" to allow input of additional information into the system, once the system has been programmed for the card requirements specified originally.

Also refer to clause S121 for power supplies to card readers and to drawing range S300/2/... and S300/3/... hereof for further details for the mounting of readers and power supplies to reader power packs.

1.2 S102 Multiple Reader System (Off-line)

The card readers shall not only comply fully with clause S101 above, but the various card readers in the system shall also be able to communicate with one another to allow for a total number of 300 cards to be used on all card readers.

Memory and processor equipment for data handling can be either incorporated in each reader or placed in the vicinity of each reader or may be centrally located.

In all the above-mentioned cases, communication between readers shall be by means of an RS 232 input/output on a minimum wire data network.

All card readers of multi-card reader systems shall be able to communicate with all cards on the system.

The installation requirements described in clause S101 hereof, as well as all details shown on the enclosed drawings, shall also apply to off-line multiple reader systems.

1.3 S103 Multiple Reader System (On-line)

Card readers shall not only comply fully with clause S101, but each shall also have full interface facilities complete with any field processor units, pro-processor or interface equipment for coupling the reader to a centrally placed computer. Each reader shall also be equipped with a RS 232 or RS 422 serial output/input port, and be suitable to transmit and receive ASCII serial data.

All card readers, with peripherals thereto, used in the project shall be interconnected with each other and with the computer by means of a minimum wire data network.

The installed memory and data handling facilities for readers, as specified in clause S101 above shall also be provided in this case to allow readers to operate in the off-line mode in case of loss of data transmission facilities between readers and computer equipment or interface equipment and shall be capable of storing at least 200 card transactions should the card reader not be able to communicate with the computer for any reason whatsoever.

The reader shall also be fitted with LED lamps, indicating the "ready" status of the reader (YELLOW), acceptance of a card (GREEN) or rejection of the card (RED). A buzzer fitted to or at the reader shall, in conjunction with the GREEN lamp, sound a short, muffled yet clearly audible alarm tone when the card is accepted, or shall, in conjunction with the RED lamp, sound an intermittent, equally audible double alarm tone when the card is rejected.

The reader shall still have off-line mode facilities to handle the particular number of cards envisaged to work with the particular reader. The card handling capacity of this type of reader shall be in accordance with the requirements of the Department.

The installation requirements described in clause S101 hereof, as well as all details shown on the enclosed drawings, shall apply to on-line multiple reader systems.

2 S110 CARD READER MOUNTING

2.1 S111 Card Reader (Surface Mounting)

The card reader shall be supplied complete with its own wall outlet box, where applicable, or shall be suitable for mounting over a standard 100mm x 50mm x 50mm pressed steel switch box. Special mounting boxes shall have 20mm \varnothing or 25mm \varnothing screwed electrical conduit connections.

The reader shall cover the wall outlet box in both the above cases or shall be supplied with a back plate accessory to cover the outlet box. Tamper-proof fixing screws or other approved fixing methods shall be employed to hold the reader in position.

Readers mounted on surface of hollow metal structures such as door frames, mullions or partitions shall be fixed by means of special clamp devices, which form part of the reader, or by means of drilled and tapped tamper-proof fixings.

Cables leaving readers through back plates or hollow metal enclosures shall be protected with properly fitting grommets or other approved chafe protecting devices.

Card readers shall be installed at a maximum height of 1200mm above finished floor level when mounted on a vertical surface.

Card readers shall be mounted in the immediate vicinity of the strike position of single doors in compliance with drawing range S300/2/... and in a position next to double doors, on the strike side leaf of the double doors, in compliance with the drawing range S300/3/...

The final mounting position of card readers must, however, be determined on site, taking site conditions into consideration.

2.2 S112 Card Reader (Flush Mounting)

NOTE: This paragraph shall not apply when sweep-through card readers are specified and is only applicable where insert readers are specifically required.

Card readers mounted flush or semi-flush in hollow structural elements shall be suitably manufactured for such purposes and shall have suitable finishing surrounds to ensure a neat finish between the reader and the surrounding structure.

Readers who are manufactured for semi-flush mounting in walls shall be supplied complete with a purpose-made mounting box, which shall be complete with a 20mmØ or 25mmØ electrical screw conduit entry. Fixings shall also be tamper-proof and readers shall be mounted at a maximum height of 1 200mm above the finished floor level when mounted on a vertical surface.

Card readers shall be mounted in the immediate vicinity of the strike position of single doors in compliance with drawing S300/2/... and in a position next to double doors, on the strike side leaf of the double doors, in compliance with drawing range S300/3/...

The final mounting position of card readers must, however, be determined on site, taking site conditions into consideration.

3 S120 POWER SUPPLIES

3.1 S121 Power Supplies of Card Readers

The power supplies of card readers referred to in clause S101 and S102 above, shall preferably be integral with the memory and processing equipment of the reader and the equipment shall be suitable to operate directly from a 230 Volt, 50 Hz single phase supply.

If separate memory, CPU and processing equipment are offered, these units shall be installed on the secure side of doors in general compliance with drawing range S300/2/... for single door situation, and drawing range S300/3/... for double door situations.

The power supply for card readers referred to in clause S103 above, shall be in the form of low voltage supplies, if required, from a centrally placed power pack at the Computer system. Separate 230 Volt or other supplies will not be available at the reader positions of card readers specified under clause S103 above. The power supplies (item 10 on drawings) refer to 230 Volt supplies from building power sources.

4 S200 SECURITY CARDS

4.1 S201 Passive Cards (Pre-programmed by Manufacturer)

Security cards shall be of the flexible, hard-wearing, plastic laminate type and shall have the approximate dimensions of a normal credit card.

The card shall be suitable for the pre-programming of data therein by the manufacturer, to be read later by the card readers specified in clause S100 hereof, in which case the cards and card readers shall be supplied by the same manufacturer.

Cards shall have a slot punched in the top portion of the card for fitting a clip, enabling the user of such a card to attach it to his/her clothing. The clip assembly shall comprise a crocodile clip attached to an appropriate strip of tough plastic or other durable material fitted with a press stud for fastening the clip to the card. Cards shall be supplied complete with clip assemblies.

The data storage elements of the card shall not be visible through the card material or on the surface of the card and the data storage elements shall further preferably be masked against copying by means of X-rays or other means.

The card encoding technology to be used is specified in the Supplementary Specification.

Opening the card for whatsoever reason shall totally destroy the card and shall render the card unsuitable for further use.

The card shall further be suitable for laminating with a layer of transparent material containing the personal information and a photograph (I.D. size) of the user. If so required, cards shall be laminated by the supplier with this layer of material and shall be complete with a photograph of the user of the card.

The personal information to be laminated onto the card, if so required, shall basically be as follows:

- Name of user.
- Initials of user.
- Rank of user.
- Citizen's I.D. number
- Official I.D. number (if any)
- Department or section where employed (if any)
- Card number of Department (if any)

The manufacturer's serial number or departmental number indicated on the outside of the card shall in no way whatsoever refer to the coding of data contained in the card.

The number of cards required shall be specified in the Supplementary Specification.

4.2 S202 Passive Cards (Programmed by User Department)

This type of card shall not only comply with clause S201 in all respects, but shall also be suitable for on site programming by the User Department, or organisation appointed by the Department.

The supplier of cards shall supply coding equipment on a permanent or rental basis for the programming, as specified by the Department.

The making available of such programming equipment shall include for the training of personnel, who will be made available by the User Department or nominated by the Department, for programming of cards.

5 S300 ELECTROMECHANICAL AND ELECTRONIC SECURITY LOCKS

This section describes the types, assembly, operation, materials and components used, finishes and performance requirements of the electromechanical and electronic security locks as used by the Department.

5.1 S300.1 Scope

This specification covers the requirements for the materials, essential dimensions, assembly, finish, operation, performance and tests of alarm escape locks, time delay alarm escape locks, monitored double bolt mortise locks and double bolt mortise dead locks, latch bolt locks and combinations of these locks and also the requirements with regard to the associated power supplies and electromechanical furniture for each lock.

5.2 S300.2 Definitions

For the purpose of this specification, the following definitions shall apply:

Acceptable

Acceptable not only to the Department of Public Works, but also acceptable to the South African Bureau of Standards in relation to standardisation marks and to inspections carried out by the Bureau, where applicable.

Alarm

The activation of a loud audible alarm and a visible LED light source when specified, or if an attempt is made to open the lock or power supply to the lock under abnormal circumstances by unauthorised persons.

Alarm escape lock

A combined lock comprising a monitored, double spring-loaded bolt mortise lock, a surface mounted housing equipped with a hinged manually operated push handle and electronic circuitry to provide controlled exit from a secure area, while audible and visible local and remote alarms are activated.

Audible alarm

An audible signal of at least 75 dB(A) and not more than 95 dB(A) sound pressure level measured at one(1) metre distance from the sound source.

Card reader

The reader head which reads the data captured in an encoded security card and transmits that data to a processor, which in turn will verify the validity of such card.

Controlled access

The authorised and controlled entry and exit via a door fitted with an alarm escape lock, by means of a key to the lock. The muted alarm is sounded when the door is used in this way.

Cylinder assembly

A separate key-operated pin-tumbler type lock unit fitted to, and operated in conjunction with, the locking mechanism of a security- and/or monitored lock.

Cylinder mortise lock

A mortise lock fitted with a double-ended cylinder assembly, key operated from either end of the cylinder, or a lock fitted with a single-ended cylinder assembly, key operated from the outside of the cylinder only and fitted with a thumb-turn or knob on the inside to operate the lock bolt assembly.

Dead lock

A lock having a dead bolt mechanism which can be locked and un-locked from either side of a door by means of a key, or from the inside by means of a thumb-turn. The dead bolt shall not be spring-loaded.

Defective

A unit which fails to comply with the relevant specification requirements in one or more respects.

Electrically operated

The unlocking of a lock by means of a solenoid, which withdraws the spring-loaded bolt of the lock out of the striking plate, or which releases the spring-loaded jaw of a striking plate allowing, the door to be opened.

Electric striking plate

An electrically operated striking plate installed in or on the doorframe of a single door or the fixed leaf of a double door (Refer to the definition of Striking Plate).

Emergency escape

The escape of a person under threat via an emergency exit.

Face of lock

The elevation of the lock which faces the user of the lock when it is approached from the secure side of the door.

Fixed leaf (Double door)

The one leaf of a double swing door normally not used for access and which is normally kept in the "CLOSED" position by means of flush bolts recessed into the top and bottom edges of the door leaf front end (bolt end of lock) in such a way that they are concealed when the other door leaf of the swing door is closed.

The slides of the flush bolts fit into appropriate recesses in the door frame at the top and floor surface at the bottom, and can be operated either manually or automatically, the required method of operation of which will be specified by the client.

Fore-end (Single)

A plate permanently attached to the front end (bolt side) of a lock, and through which the lock bolts pass to enter the striking plate in the door frame.

Fore-end (Double)

Two plates, one of which complies with the single fore-end plate, being permanently attached to the front of the lock, and the other superimposed on the first plate and attached to the front of the lock by means of screws. The bolts of the lock pass through both plates to enter the striking plate in the door frame.

Furniture

A generic term for any or all of the following items supplied separately, or in sets, or as part of a lockset, namely lever handles, escutcheons, spindles, screws and any other ancillary components.

Latch bolt (Dead locking)

The spring-loaded bolt of a double bolt mortise lock, which does not enter the striking plate on closing the door but rides on the striking plate. The latch bolt thus remains pushed back into the lock, thereby locking the main lock bolt internally when the lock bolt is in position in the striking plate, thus preventing it from being pushed back into the lock when inserting a foreign object between the striking plate and the lock fore-end.

LED

A solid state high-temperature epoxy encapsulated GaAsP light emitting diode lamp, with a maximum diameter of 5mm and with a total maximum power dissipation of 180mW at a maximum forward DC current of 100mA at 25°C.

Lever handle

An anodised cast aluminium handle with a steel insert running in a spring-loaded pressed stainless steel plate, operating the spring bolt mechanism of a lock by means of a steel spindle of square cross-section.

Microswitch

A miniature, low voltage, moulded, actuating lever operated switch with miniature contacts, which close and open with a snap action in accordance with the position of the actuating lever. The microswitch shall be of highest quality.

Monitored bolt

A mortise lock bolt assembly, operated by means of a handle and/or cylinder key fitted with a microswitch in which the contacts close to complete an electric circuit when the bolts of the lock are withdrawn from the striking plate, thereby activating alarms.

Power supply

A combined battery charger, voltage stabiliser and battery bank, all enclosed in cabinets, for the purpose of converting mains alternating current to stabilised, uninterrupted direct current of a predetermined fixed value as power supply to alarm locks or other DC consuming devices.

Striking plate

A plate fitted to the locking edge of a door frame, and having appropriate openings into which the bolts of a mortise lock engage.

Tamper-proof screws

Special countersunk head screws which can be removed only by means of a special tool. Standard screwdriver, POZIDRIV, SUPADRIV or PHILLIPS-head screws are not considered to be tamper-proof.

Time delay

The predetermined time that lapses from the instant the lock bolt mechanism of a time delay alarm escape lock is activated by means of a lever handle or push handle until the lock unlocks automatically to allow escape. The time delay is adjustable either in the lock mechanism or in the control unit.

5.3 S300.3 General Requirements

5.3.1 S300.3.1 Types and Sets

Security locks shall comprise the following lock types and lock sets only, and shall be left-handed and/or right-handed as specified in the Supplementary Specification or to suit the door swings indicated on the plant drawings. The suffix "MS" denotes that the appropriate microswitch(es) must be fitted to the lock for monitoring functions.

a) PWD Sample 23 MS: Monitored double bolt mortise lock

A lock type comprising a mortise lock fitted with double spring-loaded bolts, one bolt (normally the smaller bolt) being a latch bolt for the main bolt. Both bolts and the key cylinder assembly shall be monitored by means of microswitches. The lock shall be complete with all appropriate furniture and keys.

b) PWD Sample 24 MS: Monitored single bolt mortise dead lock

A lock type comprising a mortise lock fitted with a single spring-loaded bolt and a key cylinder operated dead bolt with the key cylinder monitored by means of a microswitch. The lock shall be complete with all appropriate furniture and keys.

c) PWD Sample 127: Alarm escape lock set

A lock set comprising a Sample 23 MS lock, an extended double key cylinder and a push lever on the secure side of the lock set for controlled exit purposes. Visual and audible signals to monitor the power supply to the lock, alarm status, key status and battery status, where a local power supply is used, shall be given. The lock set shall be complete with all appropriate furniture and keys.

d) PWD Sample 127-E: Electrically operated alarm escape lock set

A Sample 127 lock set, but fitted internally with a solenoid to enable remote operation of the main bolt of the lock by means of a keypad, card reader or push button. The lock set shall be complete with all appropriate furniture and keys.

- e) PWD Sample 127-G: Alarm escape lock set for emergency or controlled access to, and emergency exit from, gas protected areas A Sample 127 lock set, but fitted with a Sample 24 MS lock and to operate in combination with an electrically operated striking plate to enable remote operation of the lock by means of a card reader, keypad, pushbutton or other acceptable external means. Status monitoring of the door leading to the gas protected area is also a function of the lock set. The lock set shall be complete with all appropriate furniture and keys.
- f) PW Sample 128: Time delay alarm escape lock set

A Sample 127 lock set connected electrically to an electromagnet (see S300.3.3.4) to hold the door, to which the lock set is fitted, in the closed position for a predetermined adjustable period of time after activating the push handle or lever handle. The lock set shall be complete with appropriate furniture and keys.

- g) PWD Sample 128-E: Electrically operated time delay alarm escape lock set

A Sample 128 lock set, but fitted internally with a solenoid to enable remote operation of the main bolt of the lock by means of a card reader, keypad or other acceptable external means to provide safe exit by means of the electromagnet action as described under (f) above. The power to the electromagnet shall be disabled when power is applied to the solenoid. The lock set shall be complete with appropriate furniture and keys.

- h) Code lock

An electronic lock system comprising of

- an acceptable lock type PWD 23 MS or 24 MS, or lock set PWD 127 or 128, fitted internally with a solenoid or operating in combination with an electrically operated striking plate;
- a standard numeric type keypad mounted at the door at a maximum height of 1 200mm from the finished floor level;
- a pre-programmed electronic control unit mounted on the secure side of the door;
- a power unit mounted on the secure side of the door.

Controlled access to, or exit from, the secure area is obtained by typing in a code on the keypad and the automatic unlocking of the door lock by the system upon receipt of a signal from the control unit when the keyed- in code corresponds to the pre-programmed code in the control unit.

5.3.2 S3003.2 Assembly and Operation

- a) S300.3.2.1 Assembly - PWD Sample 127 and PWD Sample 128
 - i) S3003.2.1.1 General

The lock set assembly shall have approximate overall dimensions of 220mm high x 150mm wide x 80mm deep. These serve as a guide only.

The lock set shall not have any sharp edges or protrusions which can damage a person's clothing, hands or arms.

No components or pan of the lock set shall be held in position by means of epoxy or contact adhesives.

Samples of PWD lock types 23 MS, 24 MS and lock sets 127 and 128 shall be submitted to the Department for analysis, testing and acceptance at least four (4) months PRIOR to the manufacture of any of these lock sets for a project. Only written acceptance by the Department will be valid.

Failure to submit samples may result in rejection of equipment.

ii) S3003.2.1.2 Lock set housing

The housing shall be of robust construction, consisting of welded or pressed steel of adequate thickness.

A lock set housing, constructed and intended for surface mounting on the door, shall be fixed to the door in such a way that the fixing bolts are not accessible for unauthorised removal of the lock.

If a front cover plate is incorporated in the lock set housing construction, the cover shall be fixed to the lock set base plate by means of tamper-proof screws. The cover plate shall also be monitored by means of an internal microswitch, which shall activate an alarm upon removal of the cover plate whilst the lock is in service.

The LED functions shall be in accordance with S300.3.2.2(f) and marked as per S300.4.3.

iii) S300.3.2.1.3 Operating lever (for PWD Sample 127)

The operating lever shall be of robust steel construction and shall have a smooth face with dimensions of at least 50mm x 100mm and shall further have a finish similar to the lock casing where applicable.

The lever shall be manufactured from at least 1.6mm thick steel and shall hinge on, and form part of, the front casing plate where the cover plate is supplied. The operating lever shall hinge on tamper-proof steel hinge or hinges. The hinge(s) shall be fixed and appropriately supported on the front casing or door and shall not be removable without using a special method or equipment.

The lever shall be spring-loaded to return it to the normal position after being depressed and released.

The lever and operating mechanisms of the lock set shall not contain any, components of plastic, Nylon or other material that could cause the lever or lock mechanisms to be rendered inactive in case of a fire.

The lever shall operate smoothly and shall operate the mechanism of the mortise lock via a single lever action. Multiple pivot points or complex lever actions will not be acceptable in escape lock sets.

It shall be possible to withdraw the lock bolts by means of the key to the lock in case of an operating lever mechanism failure.

iv) S300.3.2.1.4 Monitored lock

The monitored lock mechanism fitted in the Sample 127 lock set shall be of the type as described in S300.3.1(a) or (b) above and shall comply with section S300.3.3 hereof. Any bolt in the locking mechanism of a lock mounted in an alarm lock set shall withdraw so that the nose of the bolt does not protrude more than 1mm beyond the fore-end plate on the door.

The lock shall have an extended double cylinder of sufficient length so that the lock can be key operated from both sides of a standard door.

The withdrawing action of any bolt in a locking device, whilst being operated by means of a lever described in S300.3.2.1.3, shall not be dependent on any spring-loaded device.

Monitored locks shall be monitored on a panel as described in clause S330.

v) S300.3.2.1.5 Electronic components and circuits

Electronic components such as LED's, integrated circuits, transistors, voltage stabilisers, carbon resistors, capacitors and wiring terminals shall be robustly mounted. The quality of components shall comply in general with S300.3.3.3.

The tracks of printed circuit boards shall be plated and treated to prevent corrosion and moulding of the tracks, and the boards shall be of sufficient thickness for the size and mass of components mounted therein.

Printed circuit boards shall in general comply with the requirements of BS 4025 or an equivalent specification and double sided boards shall comply with the requirements of BS 4597 in as far as through plating of holes are concerned.

Component identification is very important and printed circuit boards shall be marked by means of silkscreen printing or other positive means of identification, so that the number and the type of components which are mounted on the board are also clearly indicated on the printed pattern, together with the polarity of terminals where multi-terminal components are mounted. Each printed circuit board shall contain the following data:-

- a) The name or the purpose of the printed circuit board.
- b) The drawing number or type number of the printed circuit board.
- c) Component identification congruent with the identification of the particular circuit diagram.

All current and voltage stabilising components in locks shall be of the solid state type.

Integrated circuits used shall be locally available and shall be marked with an acceptable standard code number such as CD 4011, LM 721, 7000, etc. No "in-house" numbers shall appear on integrated circuits.

LED's shall be mounted in chromium plated or matt black bezels. Integrated circuits driving LED's shall be suitably rated for the LED load.

Printed circuit boards shall be mounted on insulated mountings inside the casing so that the movement of the lock components does not touch electronic components or circuit boards, or that the components and boards cannot be dislodged due to continuous operation of the lock.

The alarm sounder (audio alarm) unit shall be installed and mounted in the lock set or local to the door in such a way that it is clearly audible, yet adequately protected against damage.

The electrical and electronic parts of the lock or lock set shall be insulated from the casing so that any electrical signals present on the building electrical earth system cannot influence the operation of the lock.

All adjustable electronic and electrical components in the lock set shall be clearly labelled to indicate the function of such equipment.

The lock circuits shall provide for the extension of the indication facilities of the lock set to a remote position.

vi) S300.3.2.1.6 Wiring

The wiring in the lock set shall be neatly grouped and bound with spiral wiring harness binding and harness straps.

Loose wiring or wiring which can be disturbed when the casing is opened, is not acceptable.

Wiring in the lock shall be of the PVC2 covered multi-core (automotive) type and shall comply with SABS 150 and shall be of 0,5mm² minimum core size. Solid core wires are not acceptable.

The wiring tails which exit from the lock set shall be terminated in male crimping lug and shrouded ends so that wires on site can be terminated in female shrouded crimping lugs, so as to avoid the cutting of wires when a lock set is removed for maintenance purposes.

Wire ends shall be numbered with ring labels and a legend card fixed to the lock set shall define the function of each wire.

The operating voltage of the lock set shall be clearly marked on the legend card.

vii) S300.3.2.1.7 Power supply

- a. The power supply unit of the lock set shall be a separate unit mounted near the door.
- b. The power supply shall be of the 230V.AC/24V.DC type. It shall supply 24 V.DC continuously to the lock set from the batteries and not from the 230V/charger direct. Disconnection or reconnection of the 230V.AC supply shall not cause a direct alarm.
- c. The batteries of the power supply shall be of the sealed lead-acid type ensuring a DC supply to the lock for a minimum period of 24 hours in the case of a 230V.AC power failure.
- d. The charger shall be able to deliver the full charging current to discharged batteries and thereafter the charger shall automatically reduce the charging current to trickle charge to ensure fully charged batteries at all times.
- e. An alarm signal shall be generated if the battery power drops below $\pm 85\%$ of nominal battery voltage. See S300.3.2.2 (f) (iii).
- f. The power supply shall further contain overvoltage protection equipment to prevent malfunction or damage to its internal components or to lock components due to power line surges such as lightning spikes etc.

- g. The power supply shall be filtered and screened to ensure that radio frequencies are not radiated from the supply and that harmonics are not generated back onto the 230 V.AC power line. The battery charging circuit shall further incorporate the necessary filtering components to ensure that harmonics do not shorten the life of batteries.
- h. The batteries and the electrical or electronic components shall not be housed in the same compartment. The compartments, if adjacent or part of the same unit construction, shall be divided by means of a solid division. The compartment covers or doors, shall open separately and shall be sealed so that battery fumes cannot reach the electrical or electronic components. The compartment containing the electrical or electronic components shall always be mounted above the battery compartment in a unit construction.
- i. Heat generating components such as stabilised power supply components or components for local supply stabilisation at printed circuit boards shall be fitted on suitably sized heat sinks and shall not be mounted directly onto printed circuit boards and shall not use the copper lamination of the circuit board as a heat sink. Sufficiently long component terminals shall be used in such cases and no other component, which is temperature sensitive, or which can deteriorate due to high ambient temperatures, shall be used in close proximity of such heat generating components. Printed circuit boards shall also not be subjected to abnormal temperatures or temperatures which may influence the bonding of the copper lamination.
- j. No unmarked or properly shielded mains voltage (230 Volt) equipment shall be mounted on printed circuit boards. All mains power equipment shall be terminated in shielded compartments or power supplies so that normal maintenance can be carried out in safety.
- k. No mains power equipment or terminals thereof shall be in close proximity to, or come into contact with, low voltage carrying equipment (± 24 Volt) or digital supply voltage (± 15 Volt) components.
- l. Systems which require unnecessary large battery capacities to function, will not be acceptable.

b) S300.3.2.2 Operation - PWD Sample 127

The lock set shall operate as follows:

- a. The lock LED indication, alarm function and control function shall be powered from an external 24 Volt DC. power supply unit comprising batteries, battery charging equipment and voltage stabilising circuits. See S300.3.2.1.7.
- b. The lock set shall be fitted with an adjustable audible alarm unit emitting an audible signal of between 65 and 95dB(A) sound pressure level at one(1) meter for full (loud) alarm conditions and a clearly visible red LED indication on, or local to, the lock set. The sound output level shall be adjustable on the printed circuit board. A further alarm shall be available to deliver a muted tone of not less than 35dB(A) sound pressure level for controlled exit purposes. See table in (f) below.
- c. The main bolt of the lock shall be in the strike and the latch bolt (dead locking) shall be on the striking plate under normal circumstances and both bolts shall be spring-loaded to allow relocking when the door swings into the strike. See S300.3.1(a) and S300.2 under "Latchbolt".

- d. The main bolt shall be retracted when the lock set operating lever is operated for escape purposes. Both bolts shall relock after the door has swung back into the strike by door closer action. Operation of the lock operating lever to allow a person to escape shall cause a visual and audible alarm at the lock set. It shall be possible to reset the alarm condition of the lock set with the key at the lock.
- e. The main bolt shall be retracted when the lock is opened by means of a key. The lock shall lock and reset itself to dead lock state when the key is removed and when the door is closed by means of a door closer. The necessary indication in this case shall be given as specified further herein.
- f. The necessary alarms and indication to be provided on, or local to, the lock set, shall be by means of an audible alarm unit or units and five (5) LED's which shall function as follows:

CONDITION	ACTION AT LOCK	LED	AUDIBLE ALARM
System "ON"	Lock locked and closed	Green	-
Main alarm (escape)	When lever is activated	Red	Loud alarm
Battery voltage lower than 85% of nominal voltage	-	Red (Flickering)	Muted alarm
Controlled exit	Lock unlocked with key	Yellow	Muted alarm
Exit lock latched but still open	-	Amber	Muted alarm

- g. The lock set casing, where supplied, and the power supply door or cover shall be monitored so that unauthorised tampering with the lock set shall activate a main alarm. These monitor switches may be connected in series with the main alarm monitor switches.
- h. Refer S300.3.1(d) for the operation of the PWD Sample 127-E, electrically operated alarm escape lock set with internal solenoid, S300.3.1(e) for the operation of the PWD Sample 127-G, alarm escape lock set in gas protected areas and S300.3.2.1.4. for monitored lock.

c) S300.3.2.3 Operation - PWD Sample 128

The lock set shall operate as follows:

- a. The requirements of S300.2.2(a) to (c) above shall apply.
- b. The lock set shall supply permanent power to an electromagnet fitted to the door frame at the top of the door on the lock side of the door frame. The electromagnet shall exert pull on a steel plate fixed to the door leaf so that the door is held firmly closed by the electromagnet for an adjustable time delay.
- c. The main bolt of the lock shall retract when the lock lever handle is operated for escape purposes. The electromagnet shall, however, hold the door for the predetermined time delay and then release the door. After door release and escape actions have been completed, both bolts of the lock shall relock when the door has swung into the strike by door closer action.
- d. The time delay shall be adjustable internally in the lock set case only by a person using the proper tools to open the lock set case and who has knowledge of the adjustment procedures.
- e. Operation of the lock lever handle shall immediately cause a visual and audible alarm at the lock set. It shall be possible to reset the alarm condition of the lock with the key at the lock.

- f. The main bolt shall be retracted and the electromagnet shall be de-energised when the lock is opened by means of a key. The lock shall lock and reset itself to dead lock state when the key is removed and when the door is closed by means of a door closer. The necessary indication in this case shall be given as specified further herein.
- g. Alarms and indication must be provided as described in the table in S300.3 2.2(f)
- h. The Sample 128-E lock shall be fitted internally with a solenoid which shall operate at the lock set supply voltage. The solenoid shall be suitable to withdraw the main bolt mechanism of the lock to within 1mm of the fore-end plate so as to unlock the lock remotely by means of an external switch device such as a card reader, or other acceptable device, etc. The electromagnet holding the door in the closed position shall be de-energised simultaneously with the activation of the solenoid in the lock.

5.3.3 S300.3.3 Materials and Components

a) S300.3.3.1 Pin tumbler cylinders

The pin tumbler cylinder mechanism used in the mortice lock Samples 23 MS and 24 MS shall comply with SABS 4-1979, section 3.1.4.(b).

b) S300.3.3.2 Keys

The keys for pin tumbler cylinders shall comply with SABS 4-1979, section 3.4.1(a) and 3.4.2.

c) S300.3.3.3 Electrical and electronic component assemblies

The electronic equipment circuit boards shall preferably be manufactured in the RSA and replacement units shall be available off the shelf in the RSA. Equipment of which only a single unit has been imported or manufactured, will not be acceptable.

Equipment must be assembled in such a way that maintenance can be undertaken easily.

d) S300.3.3.4 Electromagnet

The electromagnet shall be of the continuous-rated type and shall be suitable for operation at the voltage rating of the lock set and within the limits of $\pm 10\%$ of nominal supply voltage to the lock set.

5.3.4 S300.3.4 Finish

- a) S300.3.4.1 The casing and back plates, where supplied, or mounting plates of Sample 127 and Sample 128 shall have a powder coated finish or similar quality. The finish shall further comply with SABS 4-1979, par. 3.6.3 and 6.2.13.
- b) S300.3.4.2 The finish of Sample 23 MS and Sample 24 MS mortice locks shall comply with SABS 4-1979, par. 3.6.1, 3.6.2 and 3.6.3
- c) S300.3.4.3 Lock casing and the power supply unit shall be vermin-proof.

5.3.5 S300.3.5 Fixing of Locks to Building Elements

- a) S300.3.5.1 Locks shall be suitable for fixing to the surface of, or mortised into, standard, security and fire resistant doors. It shall not be possible to remove the lock from the door without first removing the front portion or cover plate of the lock set casing.
- b) S300.3.5.2 Fixings shall be robust and it shall be possible to remove the lock only with proper tools, after the lock has been isolated at the control panel. Any forced removal of the lock or lock set shall set off the alarm circuit and/or damage the lock beyond repair.

- c) S300.3.5.3 Locks and auxiliary equipment on single security doors shall be mounted as shown on Drawing Nos. S300/2/1 to S300/2/7 and on double doors as shown on Drawing Nos. S300/3/1 to S300/3/7. Where monitor facilities are required on site for the monitoring of remotely placed locks, the necessary conduits and wiring shall be installed from the lock position to the particular monitor panel as detailed, in principle, on the drawings.
- d) S300.3.5.4 The Department will determine the quantities and types of keys for the locks and lock sets on site to enable the Authorised User of the system to unlock alarm escape locks, and also to allow the Authorised User of the system to cancel any alarms, as specified earlier herein. Each lock is normally supplied with one set of keys but master key facilities shall be available.
- e) S300.3.5.5 Where PWD Sample 23 MS, 24 MS locks, 127 and 128 lock sets are specified by the Department, the lock sets and any auxiliary equipment for the locks shall be fitted to the doors concerned strictly to the Specification of the lock and lock set supplier.

5.3.6 S300.3.6 Performance Requirements

a) S300.3.6.1 General Requirement

When submitted to the relevant tests given in S300.6.2.2 to S300. 6.2.8 inclusive, locks and components of lock sets and furniture sets shall not jam or break, and after testing, shall still be capable of correctly performing the functions related to the test conducted.

b) S300.3.6.2 Durability of Lever Handle (Sample 23 MS and Sample 24 MS)

When tested in accordance with S300.6.2.5, a lever handle and its plate or rose shall, on completion of the test, be intact and shall operate the spring-bolt mechanism of the lock without undue difficulty. Minor sagging of the lever handle shall be permitted provided that the correct operation of the spring-bolt mechanism is not affected.

c) S300.3.6.3 Accuracy of Follower (Sample 23 MS and Sample 24 MS)

When a lock is tested in accordance with S300.6.2.9, the follower shall be capable of being turned sufficiently to withdraw the bolt completely. Upon release of the follower, the bolt shall be returned to its original position by its own spring pressure.

d) S300.3.6.4 Strength of Spring-Bolt Spring (Sample 23 MS and Sample 24 MS)

The force required to depress a spring bolt to within 1mm of the fore-end, determined in accordance with S300.6.2.10, shall be $11,5N \pm 2,5N$.

e) S300.3.6.5 Security of Dead Bolt

When the dead bolt of a lock is tested in accordance with S300.6.2.3,

- a. it shall be possible, by turning the key, to throw out the dead bolt to the locked position while it supports the test load;
- b. there shall be no tendency for the dead bolt to drop back into the withdrawn position while the key remains in the locked position; and
- c. it shall be possible to withdraw the bolt to the unlocked position while it still supports the test load.

5.4 S300.4 Markings

- 5.4.1 S300.4.1 The name of the manufacturer shall be engraved or embossed in a prominent position on the front face in of the casings on all Sample 127 and Sample 128 lock sets.
- 5.4.2 S300.4.2 The operating lever on Sample 127 series of lock sets shall be engraved with the wording "EMERGENCY EXIT" in at least 8mm high white, clearly legible, letters as well as the wording "STRIKE".
- 5.4.3 S300.4.3 The functions of the LED's on all Sample 127 and Sample 128 lock sets shall be marked by means of engraved or silk-screened 6mm high, clearly legible, white letters on the front of the casing.
- 5.4.4 S300.4.4 All lock sets shall be marked permanently on the lock set housing with the following information:
- a) Serial number
 - b) Year of manufacture

The supply voltage rating shall be marked on the circuit terminal legend card inside the lock set casing.

5.5 S300.5 Sampling and compliance with specification

The Department reserves the right to request the supplier of any lock or lock set to submit any sample selected by the Department to the SABS for evaluation and testing.

The Department further reserves the right to submit any lock or lock set sample handed to it by a supplier to the SABS for testing in terms of this specification.

5.6 S300.6 Inspection and methods of test

5.6.1 S300.6.1 Inspection

Visually examine and, where relevant, measure each unit in the sample taken in accordance with S300.5 for compliance with the requirements of S300.3.3, 3.4 and S300.4 and the other requirements of the Specification, compliance with which is not assessed by the tests given in S300.6.2.2 to 6.2.12.

5.6.2 S300.6.2 Methods of Test

a) S300.6.2.1 Test conditions and Mounting of Units for Testing

Test the sample in the "as received" condition and fully assembled.

Do not dismantle, lubricate, or otherwise precondition the lock mechanism before testing a unit. Firmly mount the lock or lock set (with ifs associated furniture and power supply) in a jig resembling the true application of the lock or lock set and so designed as to ensure accurate alignment of the various components of a lock set with each other.

b) S300.6.2.2 Strength of Mechanism

Mount the lock under test as described in S300.6.2.1. Insert a follower spindle into the follower, apply a torque of 10 N.m to the spindle for a period of 30s, and then check for compliance with General Requirement S300.3.6.1.

c) S300.6.2.3 Dead Bolt Mechanism Durability Test

Mount the lock under test described in S300.6.2.1 with the fore-end vertical and the key (when applicable) inserted in the lock. Position the bow of the key in a loose-fitting chuck, which is so arranged that, when turned, only a pure torque is applied to the key. Turn the key through an angle of not less than 180° and not more than 360°. Then, returning the thumb-turn/knob or the key through the same angle, operate the dead lock mechanism for 5 000 cycles at a rate of 60±5 cycles per minute.

NOTE: Throwing the bolt fully out to the extended position and then fully withdrawing it, constitutes one complete cycle.

If, in the case of a mortise lock, either the dead lock mechanism or key fails during the test, consider the unit to be defective. On completion of the test, check for compliance with General Requirement S300.3.6.1. and Security of Dead Bolt S300.3.6.5.

d) S300.6.2.4 Cylinder Assembly Durability Test

Mount the cylinder mortise lock (Sample 23 MS and Sample 24 MS) under test as described in S300.6.2.1 with the fore-end vertical. Conduct the test as follows:

a. Cylinder mortise dead locks (Sample 24 MS)

Insert the key into the cylinder to operate the dead lock mechanism. By turning the key, throw the dead bolt into the locked position and then into the unlocked position. Withdraw the key, thus completing one cycle.

b. Cylinder mortise locks (Sample 23 MS)

Insert the key into the cylinder to operate both the main bolt and the latch bolt mechanism (simultaneously). By turning the key, withdraw the main bolt to within 1mm of the fore-end and then release the bolt. Withdraw the key, thus completing one cycle.

Carry out the relevant test(a) or (b) above for a total of 5 000 cycles at a rate of 60±5 cycles per minute. If, during the test, either the key or the cylinder mechanism fails, consider the unit to be defective. On completion of the appropriate test, check the lock for compliance with General Requirement S300.3.6.1.

NOTE: Test (a) may be conducted in conjunction with the test on cylinder mortise locks given in S300.6.2.3.

e) S300.6.2.5 Durability Test for Spring-bolt Mechanism. Knobs and Lever Handles (Sample 23 MS and Sample 24 MS)

Mount the lock under test as described in S300.6.2.1 with the fore-end of the lock vertical. By using a suitable mechanism, and by applying normal hand pressure only, operate the lever handle so that the latch follower withdraws the spring-loaded bolt to within 1mm of the fore-end and then release the lever handle, allowing the spring-loaded bolt to return completely to its reset position. This completes one cycle. Repeat this sequence of operation for 10 000 cycles at a rate of 60±5 cycles per minute.

Then, if the unit under test is

- a. a lock set, check the lock for compliance with General Requirement S300.3.6.1;
 - b. a lock set or a furniture set, check the knob or lever handle and its plate or rose for compliance with Durability of Lever Handle S300.3.6.2.
- f) S300.6.2.6 Durability Test for Latch Mechanisms (Sample 23 MS and Sample 24 MS)

Mount the lock under test as described in S300.6.2.1 with the fore-end vertical. By means of a suitable rotating cam, depress the latch bolt to within 1mm of the fore-end and then release it, allowing the latch bolt to return completely to the reset position, thus completing one cycle. Repeat this sequence of operations for 10 000 cycles at a rate of 60±5 cycles per minute. On completion of the test, check for compliance with General Requirement S300.3.6.1.

- g) S300.6.2.7 Strength of Lock Case and Bolts (Sample 23 MS and Sample 24 MS)

Mount the lock under test as described in S300.6.2.1. Apply, without shock, a static force of 1 600N to the bolt (s) in the unit under test as follows:

Using a steel bearer having a rounded edge, which is so positioned that it bears against the bolt 3mm from, and parallel to, the fore-end, apply the force in a direction perpendicular to the securing face of a bolt and to each of the locking faces of a dead bolt. Check for compliance with General Requirement S300.3.6.1.

- h) S300.6.2.8 Strength of Staples (Sample 23 MS and Sample 24 MS)

With the staple under test mounted in the normal manner (using the screws supplied) apply, without shock, a static force of 1 600N in a direction perpendicular to the inner face of the staple against which the bolt(s) would bear. Apply the force by a means that simulates the position(s) and width(s) of the bolt(s) of the lock or latch. In case of a staple for a two-bolt lock, apply the force twice, once to each bolt position. Then check for compliance with General Requirement S300.3.6.1.

- i) S300.6.2.9 Accuracy of Follower (Sample 23 MS and Sample 24 MS)

Mount the lock under test as described in S300.6.2.1 Turn the lever handle or knob first in one direction as far as possible and release it, then turn it in the opposite direction (if the unit allows it) as far as is possible and release it. Check for compliance with Accuracy of Follower S300.3.6.3.

- j) S300.6.2.10 Strength of SpringBolt Spring (Sample 23 MS and Sample 24 MS)

Supporting the lock in a suitable manner, apply a force to the end of the spring-loaded bolt and determine the minimum force required to depress the bolt to within 1mm of the fore-end. Check for compliance with Strength of Spring-bolt Spring S300.3.6.4.

k) S300.6.2.11 Plating Test

a. Zinc plating

Use the relevant method given in BS 1706 to determine the thickness of the zinc coating.

b. Nickel plating

Use either or (in cases of doubt) both of the relevant methods given in ISO 1458 to test the adhesion of the coating, and use the relevant method in ISO 1458 to determine its thickness.

c. Chromium on nickel plating

Use the relevant methods given in SABS 728 to test the adhesion of the coatings and to determine their thicknesses.

l) S300.6.2.12 Corrosion Resistance of Paint Coatings

Use the apparatus and procedure, given in SABS Method 155, to test painted units or components in the "as received" condition. Examine for compliance with S300.3.4.2.

6 S301 ELECTRICALLY OPERATED STRIKING PLATES

Electrically operated striking plates shall comprise an electromagnetic plunger and mechanical mechanism housed in a plated steel enclosure. The mechanism shall operate a stainless steel bolt retaining jaw.

The above-mentioned mechanism shall be integrally mounted on a strike lip and face plate combination and the whole assembly shall be suitable for mounting in a narrow hollow metal style, door jamb or edge of a hardwood door, in accordance with site requirements.

The electric striking plate shall be slim in construction and shall be fitted with a solenoid at one end on its long axis. The solenoid shall operate with a low voltage supply and the jaw of the striking plate shall be released when power is supplied to the solenoid, allowing the bolt of the lock to move freely out of the striking plate when the door is opened.

The jaw of the striking plate shall revert to its locked position when the power to it is removed.

The striking plate shall be suitable for 6/24V.DC intermittent operation and shall be supplied complete with a 230/24V transformer as power supply. The power supply to the striking plate shall be switched by some accepted means of control equipment.

The 230V supply to the transformer shall not be switched for this purpose. The transformer shall be suitable for continuous operation.

The striking plate shall be supplied complete with stainless steel face plate, face plate screws, mounting brackets, adhesive shims machine screws, etc. to suit all mounting possibilities on site.

The transformer for the power supply to the striking plate shall be mounted in a suitable steel box in a position as close as possible to the striking plate position, but not more than 10 metres away from the striking plate position. The 24V supply between the transformer position and the striking plate shall consist of 4mm² PVC conductors plus an earth wire housed in 20mm conduit. The transformer shall always be mounted on the secure side of any door controlled by the striking plate.

A steel box shall be used behind striking plate positions at door jambs to enable the fitting of striking plates after door jambs have been built in. Door jambs shall be milled out in accordance with the template data of the manufacturers of the striking plate to ensure the neat fitting of the striking plate. The box behind the door jamb, for the fitting of the striking plate, shall be in accordance with the detailed drawing S300/1.

The lock mounted in the door shall always be fitted after the striking plate has been positioned to ensure perfect lining up of the lock bolt with the strike jaw.

The details of drawing S300/2/2, 2/3, 2/4, 2/6, 2/7, as issued by the Department, shall be applicable where a striking plate is to be mounted on single doors, whereas drawing S300/3/2, 3/3, 3/4, 3/6 and 3/7 shall be applicable for the mounting of an electric striking plate on double doors.

Striking plates and locks shall always be fitted to ensure a minimum of play between the lock bolt and the strike jaw upon completion of the installation.

Refer to clause S302 for monitored striking plates, clause S310 for push button operation, clause S100 for card readers and clause S300.3.1(h) for code locks.

Electrically operated striking plates are operated in combination with push buttons, card readers and keypads, all as indicated on drawings S300/2/2, S300/2/3, S300/2/4, S300/3/2, S300/3/3 and S300/3/4.

7 S302 MONITORED STRIKING PLATES

When required by the Department, the electrically operated striking plates as specified in clause S301 hereof, shall be fitted with microswitches for monitoring purposes.

The microswitch(es) shall monitor the following minimum functions:

- a) The strike jaw to determine whether the lock bolt is in position in the jaw.
- b) The plunger or mechanism which actually releases the strike jaw.

The microswitch(es) shall be mounted as integral equipment in the striking plate and shall be inaccessible and tamper-proof when the striking plate is mounted in position at a door frame. Wiring of microswitches shall be brought out and shall be clearly marked to indicate the purpose thereof.

8 S310 PUSH BUTTONS

When required by the Department, a push button shall be installed on the secure side of a door or in an approved position to allow the Authorised User of the system to release an electric striking plate by pressing such a button.

Push buttons next to doors shall be installed at 1 400mm above finished floor level in standard 100mm x 50mm x 50mm draw boxes and the buttons shall be of robust construction.

Push buttons shall be suitable for long life operation, low contact bounce and low contact resistance.

Terminals of push buttons shall be suitable for conductor sizes used and the contact duty shall be suitable for operation at the voltage in use on the button. Wiping contacts shall be used for the push buttons and contacts shall be constructed of high quality material such as silver-tipped or gold-laminated contacts.

Push buttons shall further be mounted in satin chrome cover plates on the draw boxes.

9 S320 WIRING LOOPS

The electrical wiring between the lock or lock set on the door and the end box on the wall adjacent to the door frame shall run in a wiring loop of flexible steel tubing.

The one end of the wiring loop shall be suitably terminated for attaching it by means of screws to the surface of the door, over the opening where the lock or lock set electrical wiring emerges from the door.

The other end of the wiring loop shall terminate in a standard 65mmØ end box, which shall be either surface mounted on, or mounted flush with the wall adjacent to the door frame.

Refer drawing range S300/2/4 to S300/3/7.

The electrical wiring from the lock or lock set shall be without joints, shall run inside the wiring loop, and shall terminate in a suitably sized connection block in the 65mmØ end box.

A concealed type wiring loop between the hinged edge of the door and the inside edge of the door frame may be used. In this case the 65mmØ end box shall be mounted flush with the wall.

The wiring loop type, the method of termination of the loop on or in the wall and the door, and the connection block in the end box shall all be acceptable to the Department.

10 S330 ALARM ESCAPE LOCK MONITOR PANEL

The lock monitor panel shall consist of a metal wall mounted cabinet containing a power supply unit, main panel module with indication and power supply monitor facilities, and lock monitor modules as required by site circumstances.

Modules shall be self contained and the cabinet offered shall contain the power unit, main module and the quantity of monitor modules for locks as specified, as well as at least 25% space capacity for adding lock modules when required.

10.1 S330.1 General panel construction

The panel shall be of the wall-mounted type and shall consist of the modern type of anodized aluminium modular cabinet unit with modular add-on units and faceplates. All faceplates shall be pre-manufactured and prepared to accept all controls and lamps flush-mounted behind the faceplates.

The panel shall be as shallow as possible but shall have sufficient space to house all batteries and equipment as specified further herein. The panel shall have fixing facilities for surface mounting on a wall by means of small masonry bolts.

Panels shall further have sufficient stiffness to exclude drumming and distortion and cut-outs shall fit neatly around face plate or chassis mounted equipment.

The faceplates which cover equipment, which must receive regular attention or maintenance, shall be mounted on acceptable metal hinges. All wiring leading to equipment mounted to the face plates shall be contained in spiral PVC harness tubing and the harness shall be installed and fixed in such a position that doors can be opened through 150° without damage to wiring. Suitably fixed ribbon cable will also be acceptable for this purpose.

Equipment of different types and functions shall be housed in separate compartments and compartments containing heat generating equipment shall be suitably ventilated by means of natural ventilation.

Batteries and charging equipment shall be mounted in a separate cubicle, with the batteries mounted in the bottom of the cubicle and charging equipment preferably mounted in the top of the cubicle.

The battery and charger cubicle shall be mounted below the monitor panel, thereby forming a unit construction with the monitor panel to render a neat overall appearance. Batteries shall be mounted in such a way that these can be easily replaced and maintained.

Power pack heat generating equipment, such as rectifiers and thyristors, shall be mounted on suitably sized heat sinks, which in turn shall be mounted in such positions that the heat generated by such equipment is not detrimental to other components.

Mains voltage equipment shall be shielded to prevent accidental contact.

The power cord of the panel shall be of the heavy duty three-core PVC insulated type. The power cord entry into the panel shall be at the bottom of the panel and the cord shall be suitably clamped inside the panel to eliminate physical stress on wiring terminals inside the panel.

All outgoing monitor wiring terminals shall preferably be mounted at the top of the panel behind a separate removable cover. Terminals shall be clearly grouped and marked to simplify installation and connection of wires on site by installation personnel. All outgoing and incoming terminals and all other equipment in the panel shall be suitably labelled to simplify installation and maintenance and all panel-mounted equipment shall likewise be labelled. The wording for labelling shall fully describe the function of each item.

Indicator equipment shall preferably be mounted on the left-hand side of the panel so that extendibility of the panel is possible from left to right.

All panels shall be locked in position by means of "DZUS" or similar screwdriver catches. Studs, self-tapping screws and dome nuts will not be acceptable as means of fixing for panels.

A painted sheet steel cabinet may be offered in place of the modular unit described above, but all other requirements stipulated above shall still be applicable for the panel.

All printed circuit boards shall be of the modular plug-in type. All contacts shall be of the gold-plated type and shall ensure proper contact for digital data handling.

The panel shall have provision to terminate a 20mm⁰ electrical conduit for each outgoing monitor circuit in the top plate of the panel. Site conditions, though, may finally determine whether less conduiting or even wiring trunking may be used for incoming wiring. Further holes, which are required on site, shall be made with a chassis punch.

10.2 S330.2 Power supply unit

The power pack of the panel shall be able to accept the incoming 230Volt supply, shall transform and rectify the supply and shall charge sealed lead-acid batteries to ensure an uninterrupted power supply to the system, including all monitor circuits, for a minimum period of 72 hours.

N.B. *No dry cell batteries shall be fitted in alarm locks in the case of systems in which the locks are supplied with power from the monitor panel. The red flickering LED and the muted alarm for indication of battery depletion shall then not be connected.*

The monitor circuits shall operate at a voltage not exceeding 50 Volt D.C.

The charger shall be able to deliver the full charging current to discharged batteries and shall thereafter automatically reduce the charging current to trickle charge to ensure fully charged batteries at all times. The charging circuit shall also ensure that batteries do not build up "memories". Further circuitry in the form of timer controlled, voltage comparator and thyristor controlled discharging will be considered an added advantage to cycle the battery charge to ensure longer battery life. The charging and discharging cycle of such equipment shall, however be such as to ensure that the output voltage to monitor circuits shall still remain at an acceptable level at all times and shall maintain monitor functions of all outgoing circuits for the period as specified previously, in the event of a power failure at the end of a discharge cycle.

Upon loss of mains power, the power supply unit shall automatically revert to battery power, and the system shall remain fully operational. The panel shall automatically revert back to mains power upon mains power restoration and manual resetting of the panel shall not be necessary.

A signal shall be generated when the system is operating under battery power only i.e. loss of mains power.

A further signal shall be generated if the battery power drops below $\pm 85\%$ of nominal battery voltage or if the charger fails. The necessary indication and audio signals shall be provided from the power supply unit on the main module panel as specified further herein.

The power supply unit shall contain overvoltage protection equipment to prevent malfunction or damage due to power line surges such as lightning spikes, etc. Stabilisation of the supply to monitor circuits shall also be provided on the power supply unit to safeguard monitor circuits against overvoltage damage.

Battery pack and charger circuits shall further incorporate the necessary filtering components to ensure that radio frequency interference is not present on the mains supply to the panel or on outgoing monitor wiring.

10.3 S330.3 Main panel module

The main panel module shall contain the following controls and equipment, accessible from the front of the panel:

- Mains circuit breaker or withdrawable fuse
- Mains "On" - green LED
- Power supply charger healthy - green LED
- Power supply DC output - green LED
- Battery voltage below 85% of nominal voltage - amber LED (buzzer to operate)
- Mains supply failure - red LED (buzzer to operate)
- Power supply output withdrawable fuse (in-line in front of battery and DC output LED)
- Lamp test button - to test all lamps on panel, including lock module lamps
- Alarm accept button - to silence buzzer (LED's to stay on till condition is cleared)
- Key switch - to isolate all modules when panel is undergoing service

10.4 S330.4 Lock monitor modules

The panel shall contain lock monitor modules in accordance with the number of outgoing circuits as stipulated by the Department or as required by site circumstance. The lock modules shall monitor emergency escape lock normally closed contacts, on a continuous basis to ensure alarm conditions when a lock is activated or when circuit wiring is broken.

The following equipment shall be mounted on each module:

Lock main alarm (when lock is used for emergency escape) - red LED (buzzer to operate)

Lock opened by key - yellow LED (buzzer to operate)

Door closed (latched) - amber LED

Switch or button to isolate lock circuit in case of service

Indication of isolation of circuit - red LED

Each lock module outgoing circuit shall end in clearly marked pairs of screw-type terminals in the top of the panel. The terminals shall be marked to indicate the purpose of the terminals i.e. "Lock 1", "Lock 2", etc., and all the pairs of terminals shall be grouped together in a row and shall be large enough to accept 1mm² wiring.

Connection cables between lock modules and the panel terminals shall preferably be of the flat multiwire cable which shall terminate in press-in edge connector type terminals, so that modules can be kept in service stock by the Department for ease of replacement, if necessary.

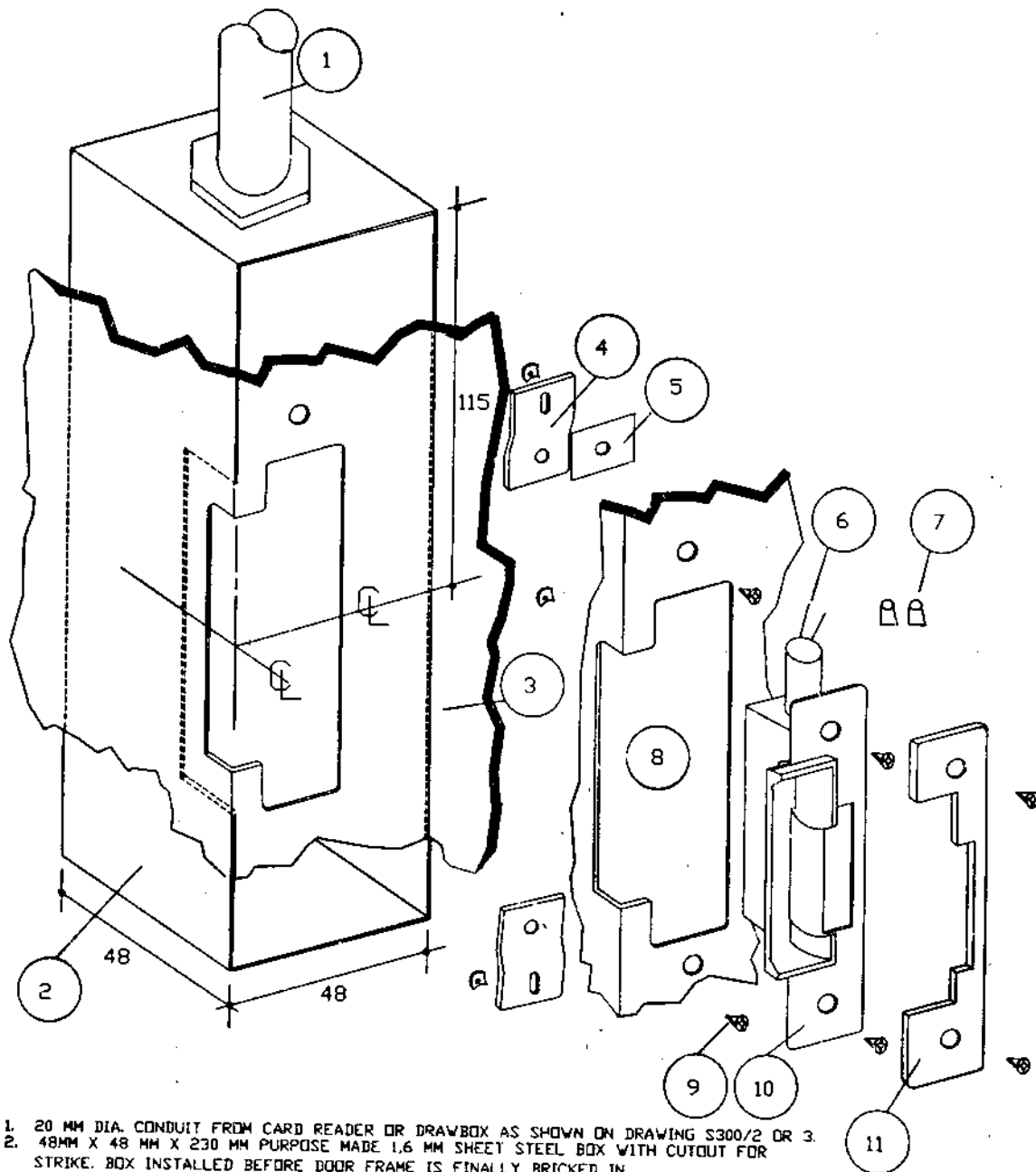
10.5 S330.5 Components

The panel shall be designed and built with solid state high quality components throughout and the use of relays shall be avoided. Commercially available components shall be used and ICs shall preferably be mounted by means of plug-in IC bases. Normal incandescent lamps for indication will not be acceptable.

1	PWD acceptable door closer.
2	PWD Sample 23 MS lock as per Clause S300.3.1(a)
3	PWD acceptable door.
4	Electrically operated striking plate as per Clause S301.
5	Push button on secure side of the door as per Clause S310.
6	Conduit and wire or cable, as required by equipment.
7	Power supply equipment in flush box on secure side of door for electrically operated striking plate, as per clause S301.
8	Separate processor, memory and power supply for card readers, as per Clause S120.
9	Card reader as per Clause S101 and S102, S103 and S111.
10	230V mains power supply.
11	Control unit and power supply for code lock system, as specified in Clause S300.3.2.1.7
12	Code lock keypad as specified. Keypad, controls and/or card reader must be placed on site indicated on the layout drawings or as required by the Department. Sample 127 - E or 128 - E
13	PWD Sample 127 (or 127 - E or 127 - G) as specified in Clause S300.3.1(c), (d) or (e).
14	PWD acceptable flexible wiring loop as per Clause S320.
15	Wireway routed into door edge and sealed after installation of wires with hardwood strip if lock is electrically controlled.
16	Control equipment such as push button, card reader or keypad, as specified in Clause S330.
17	Electromagnet for PWD Sample 128 lock set as specified in Clause S300.3.3.4.
18	Notices as per details on Drawing no's. S300/2/5 and S300/3/5.
19	Alarm monitor panel in security area or other approved position. Alarmpanel is specified in Clause S330.
20	Power supply to lock set, as specified in Clause S300.3.2.1.7.
21	Break glass unit as required.
22	Notices for two-way escape as per details on drawing S300/2/6 and S300/3/6.
23	Gas control panel as per specification for gas installations.
24	Micro-switch as required.
25	Flush bolts, acceptable to the Department.
26	PWD Sample 128 lock set as per Clause S300.3.1(f) or (g).
27	PWD Sample 24 MS lock as per Clause S300.3.1.(b)

ELECTRIC STRIKING PLATE - MOUNTING DETAILS

S300/1

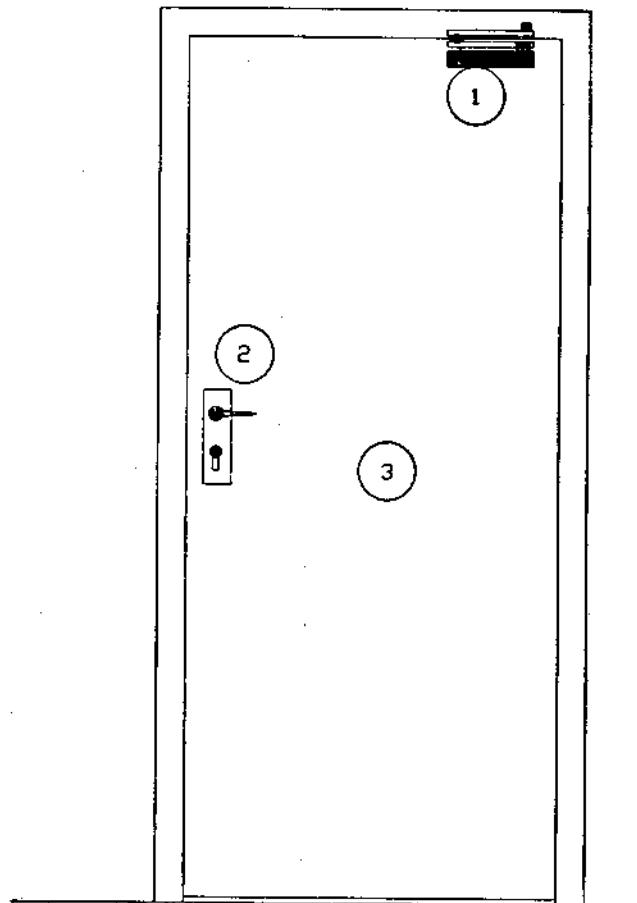


1. 20 MM DIA. CONDUIT FROM CARD READER OR DRAWBOX AS SHOWN ON DRAWING S300/2 OR 3.
2. 48MM X 48 MM X 230 MM PURPOSE MADE 1.6 MM SHEET STEEL BOX WITH CUTOUT FOR STRIKE. BOX INSTALLED BEFORE DOOR FRAME IS FINALLY BRICKED IN.
3. DOOR FRAME WITH CUTOUT FOR ELECTRIC STRIKE. CUTOUT TO BE IN ACCORDANCE WITH SUPPLIER'S DETAIL.
4. MOUNTING BRACKETS BY SUPPLIER.
5. ADHESIVE SHIM BY SUPPLIER.
6. 24 VOLT LEADS.
7. WIRE CONNECTORS BY SUPPLIER.
8. CUTOUT IN DOOR FRAME FOR ELECTRIC STRIKE.
9. FIXING SCREWS BY SUPPLIER.
10. ELECTRIC RELEASE STRIKE AS PER CLAUSE S301 OF STANDARD SPECIFICATION.
11. FACE PLATE FOR STRIKE BY SUPPLIER.

SINGLE DOOR WITH DOOR CLOSER AND SAMPLE 23 MS LOCK

S 300/2/1

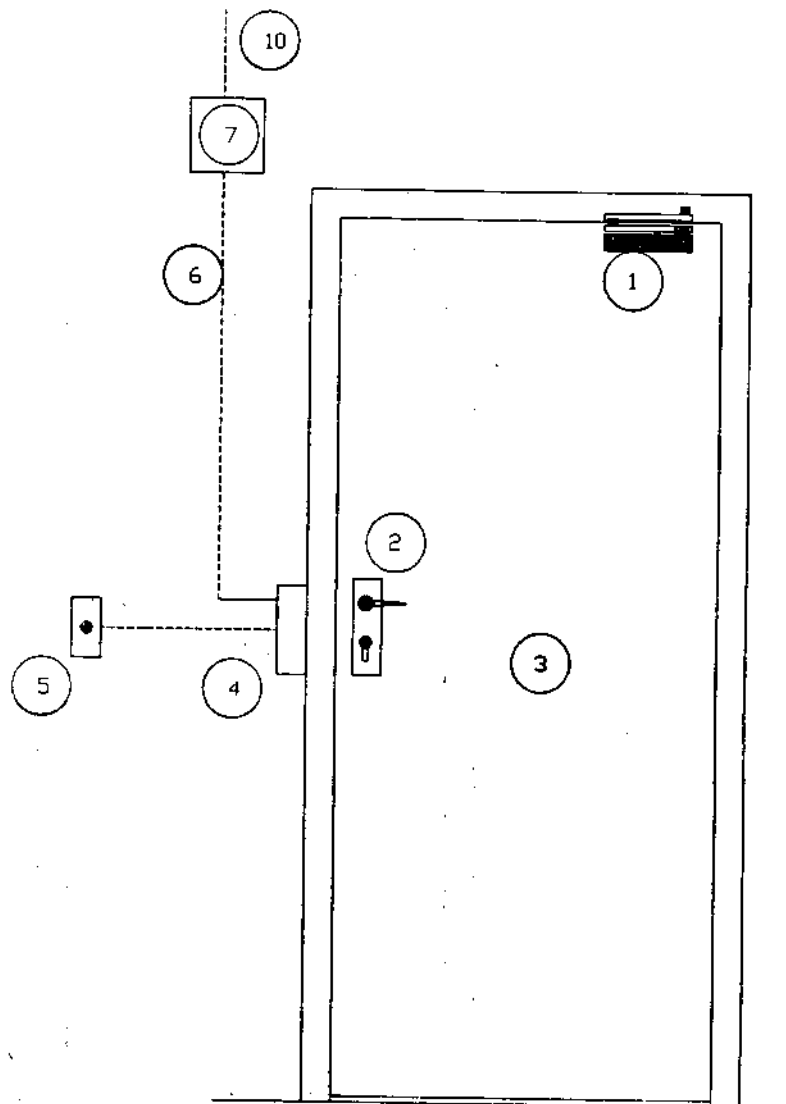
NOTE : THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED

CLAUSES APPLICABLE TO THIS DRAWING :
S300.3.1 (SAMPLE 23 MS. -2)

SINGLE DOOR WITH DOOR CLOSER, SAMPLE 23 MS LOCK,
ELECTRICALLY OPERATED STRIKING PLATE AND PUSH BUTTON.

S 300/2/2

NOTE : THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED



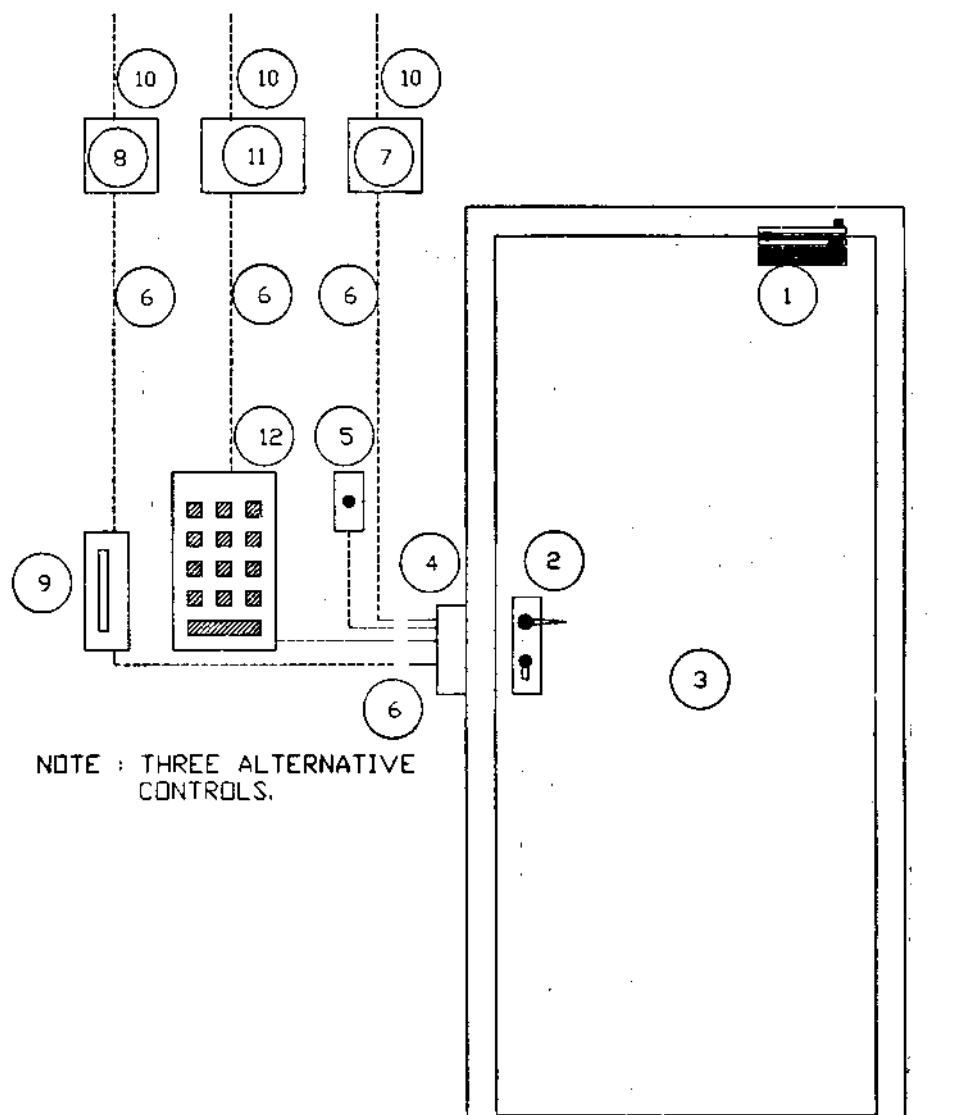
CLAUSE APPLICABLE TO THIS DRAWING :

- S300.3.1 (SAMPLE 23 MS LOCK - 2)
- S301 (ELEC. OPERATED STRIKING PLATE - 4)
- S301 (POWER SUPPLY TO ELEC. OP. STRIKE PLATE - 7)
- S310 (PUSH BUTTON - 5)
- (230 V MAINS POWER SUPPLY - 10)

SINGLE DOOR WITH DOOR CLOSER, SAMPLE 23 MS LOCK, ELECTRICALLY OPERATED STRIKING PLATE, KEYPAD, CARD READER OR OTHER CONTROLS.

S 300/2/3

- NOTE : 1. THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED
 2. CONTROL ITEMS 5 (BUTTON), 9 (CARD READER) AND 12 (CODE LOCK) ALL HAVE THE SAME FUNCTION AND THE ITEMS USED MUST BE SELECTED DURING THE DETAIL DESIGN OF SYSTEMS.
 3. THE CODE LOCK SYSTEM CAN EQUALLY OPERATE WITH A SAMPLE 24 MS LOCK OR 127 OR 128 LOCK SETS - SEE S300.3.1(h)



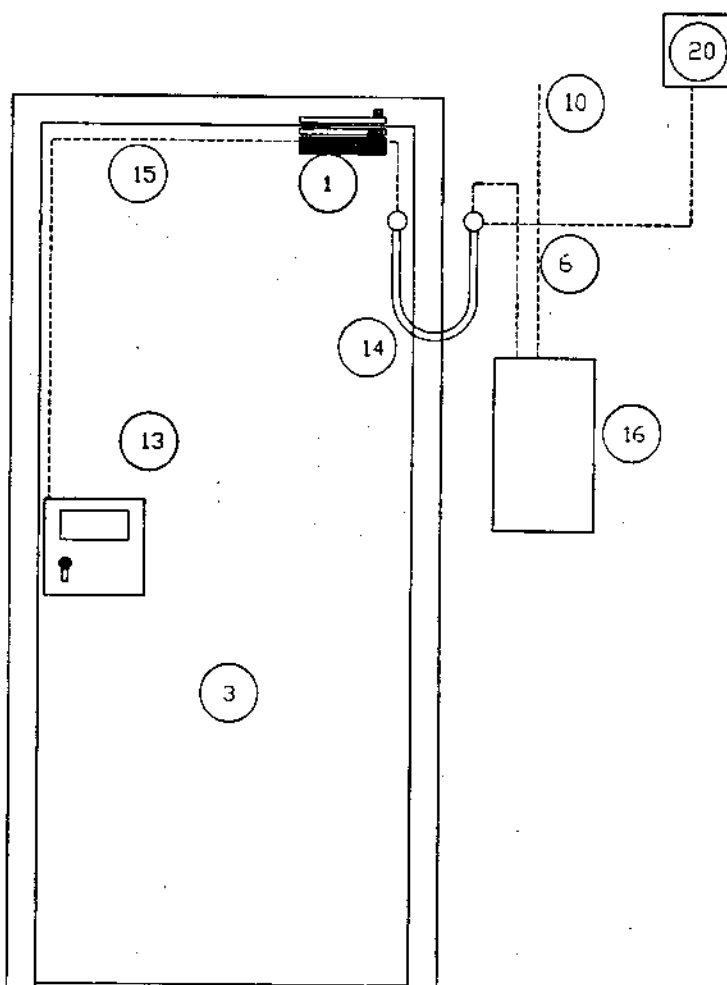
CLAUSE APPLICABLE TO THIS DRAWING :

- S300.3.1 (CODE LOCK SYSTEM, COMPRISING SAMPLE 23 MS LOCK - 2, AND KEYPAD - 12)
 S301 (ELEC. OPERATED STRIKING PLATE - 4)
 S301 (POWER SUPPLY TO ELEC. OP. STRIKE PLATE - 7)
 S310 (PUSH BUTTON - 5)
 (230 V MAINS POWER SUPPLY - 10)
 S101, 102 OR 103 (CARD READER - 9)
 S111 (CARD READER ON NON-SECURE SIDE - 9)
 S120 (POWER SUPPLY TO CARD READERS - 8)
 S300.3.2.1(POWER SUPPLY FOR CODE LOCK SYSTEM - 11)

SINGLE DOOR WITH DOOR CLOSER AND ALARM ESCAPE LOCK SET
SAMPLE 127 WITH CONTROL EQUIPMENT.

S 300/2/4

- NOTE : 1. REMOTE DEVICES ARE TO BE SELECTED FOR THE SAMPLE 127-E WHEN THE DETAIL DESIGN OF A SYSTEM IS UNDERTAKEN. ITEM 16 CAN BE A PUSH BUTTON, CARD READER OR CODE LOCK AND/OR A MONITOR PANEL TO REMOTELY MONITOR THE STATUS OF THE LOCK.
2. THE POWER SUPPLY(20) IS ONLY USED WHEN THE SAMPLE 127 IS NOT SUPPLIED WITH POWER FROM A MONITOR PANEL. THE DETAIL SPECIFICATION MUST SPECIFY THE POWER SUPPLY REQUIREMENTS OF THE LOCK IN DETAIL.



CLAUSE APPLICABLE TO THIS DRAWING :

S300.3.1 (PWD SAMPLE 127 LOCK - 13)

S101, 102 OR 103 AS REQUIRED (CARD READER - 9)

S120 AS REQUIRED (POWER SUPPLY - 7)

S310 AS REQUIRED (PUSH BUTTON - 5)

S320 (WIRING LOOP - 14)

S330 AS REQUIRED (CONTROLS - 16)

S300.3.2.1 (LOCK SET POWER SUPPLY - 20)

(230 V MAINS POWER SUPPLY - 10)

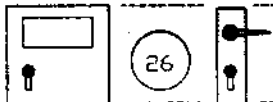
SINGLE DOOR WITH DOOR CLOSER AND TIME DELAY ALARM
ESCAPE LOCK SET SAMPLE 128 WITH CONTROL EQUIPMENT
AS REQUIRED.

S 300/2/5

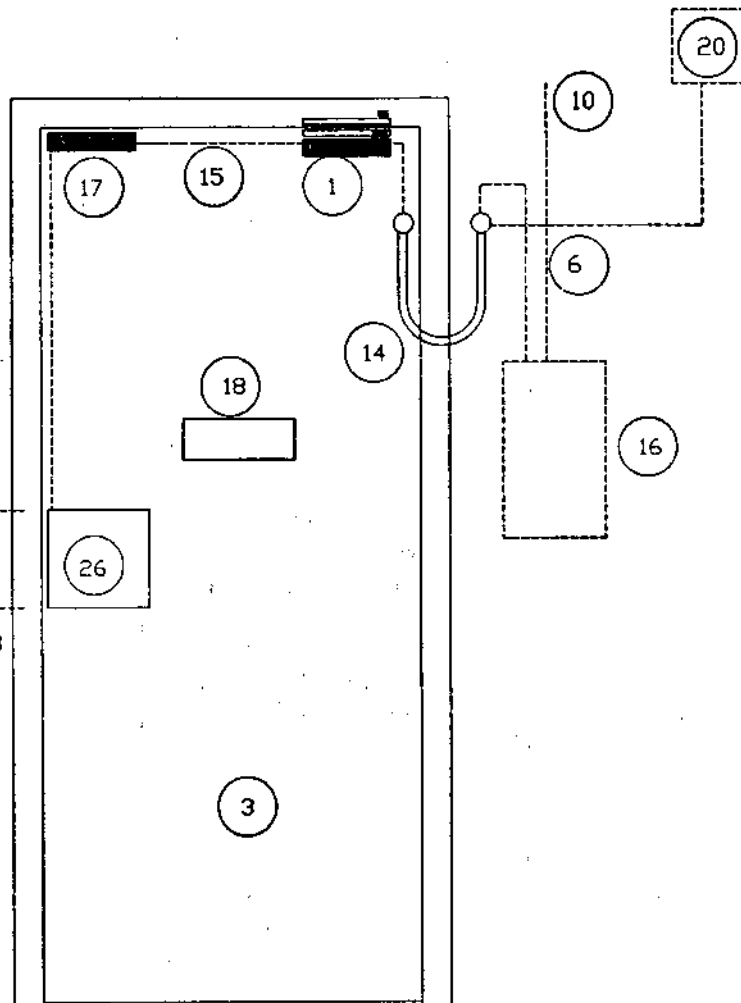
- NOTE : 1. REMOTE DEVICES ARE TO BE SELECTED FOR THE SAMPLE 128-E WHEN THE DETAIL DESIGN OF A SYSTEM IS UNDERTAKEN. ITEM 16 CAN BE A PUSH BUTTON, CARD READER OR CODE LOCK AND/OR A MONITOR PANEL TO REMOTELY MONITOR THE STATUS OF THE LOCK.
2. THE POWER SUPPLY(20) IS ONLY USED WHEN THE SAMPLE 128 IS NOT SUPPLIED WITH POWER FROM A MONITOR PANEL. THE DETAIL SPECIFICATION MUST SPECIFY THE POWER SUPPLY REQUIREMENTS OF THE LOCK IN DETAIL.

DETAIL OF 18.

1. PRESS OPERATING LEVER AND HOLD DOWN.
2. ALARM WILL SOUND
3. DOOR WILL RELEASE AFTER SHORT TIME DELAY



EITHER TYPE OF SAMPLE 128
LOCK SET COMPLETE WITH
INDICATION LED'S AS PER
SPECIFICATION.



CLAUSE APPLICABLE TO THIS DRAWING :

S300.3.1 (PWD SAMPLE 128 LOCK - 26)

S320 (WIRING LOOP - 14)

S330 AS REQUIRED(CONTROLS - 16)

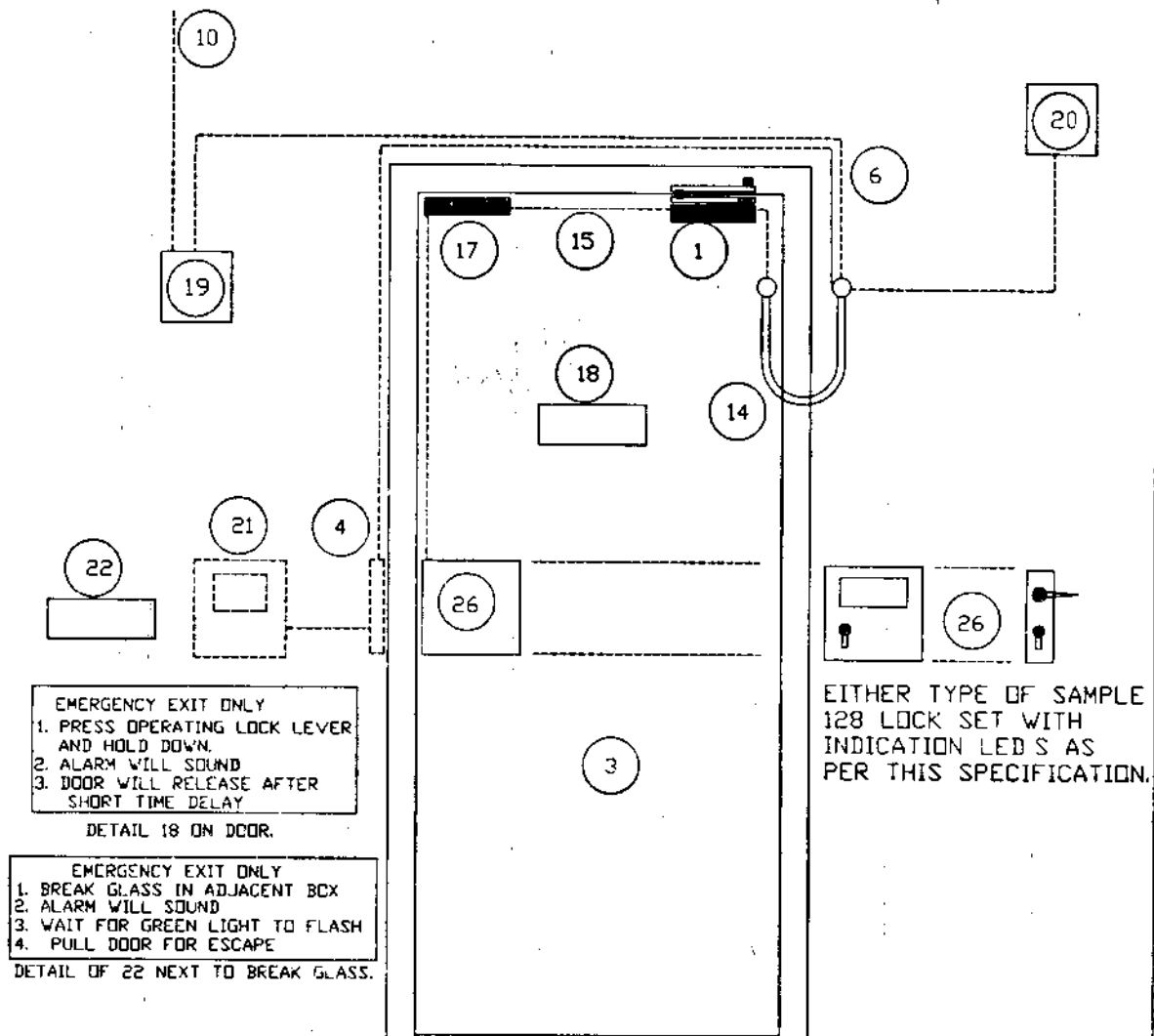
S300.3.2.1(LOCK SET POWER SUPPLY - 20)

S300.3.3.4(ELECTROMAGNET FOR SAMPLE 128 LOCK SET - 17)

SINGLE DOOR WITH DOOR CLOSER, TWO-WAY ESCAPE EQUIPMENT, CONTROLS AND MONITOR PANEL AS REQUIRED.

S 300/2/6

NOTE : 1. THE BREAK GLASS UNIT (21) IS NOT PLACED ON THE LOCK SIDE OF THE DOOR.
2. THE POWER SUPPLY (20) IS ONLY USED WHEN THE SAMPLE 128 IS NOT SUPPLIED WITH POWER FROM A MONITOR PANEL. THE DETAIL SPECIFICATION MUST SPECIFY THE POWER SUPPLY REQUIREMENTS OF THE LOCK IN DETAIL.



CLAUSE APPLICABLE TO THIS DRAWING :

S300.3.1 (PWD SAMPLE 128 OR 128-E LOCK SET - 26)

S320 (WIRING LOOP - 14)

S330 (MONITOR PANEL AS REQUIRED- 19)

S300.3.2.1 (LOCK SET POWER SUPPLY - 20)

S300.3.3.4 (ELECTROMAGNET - 17)

S301 (ELECTRICALLY OPERATED STRIKE - 4)

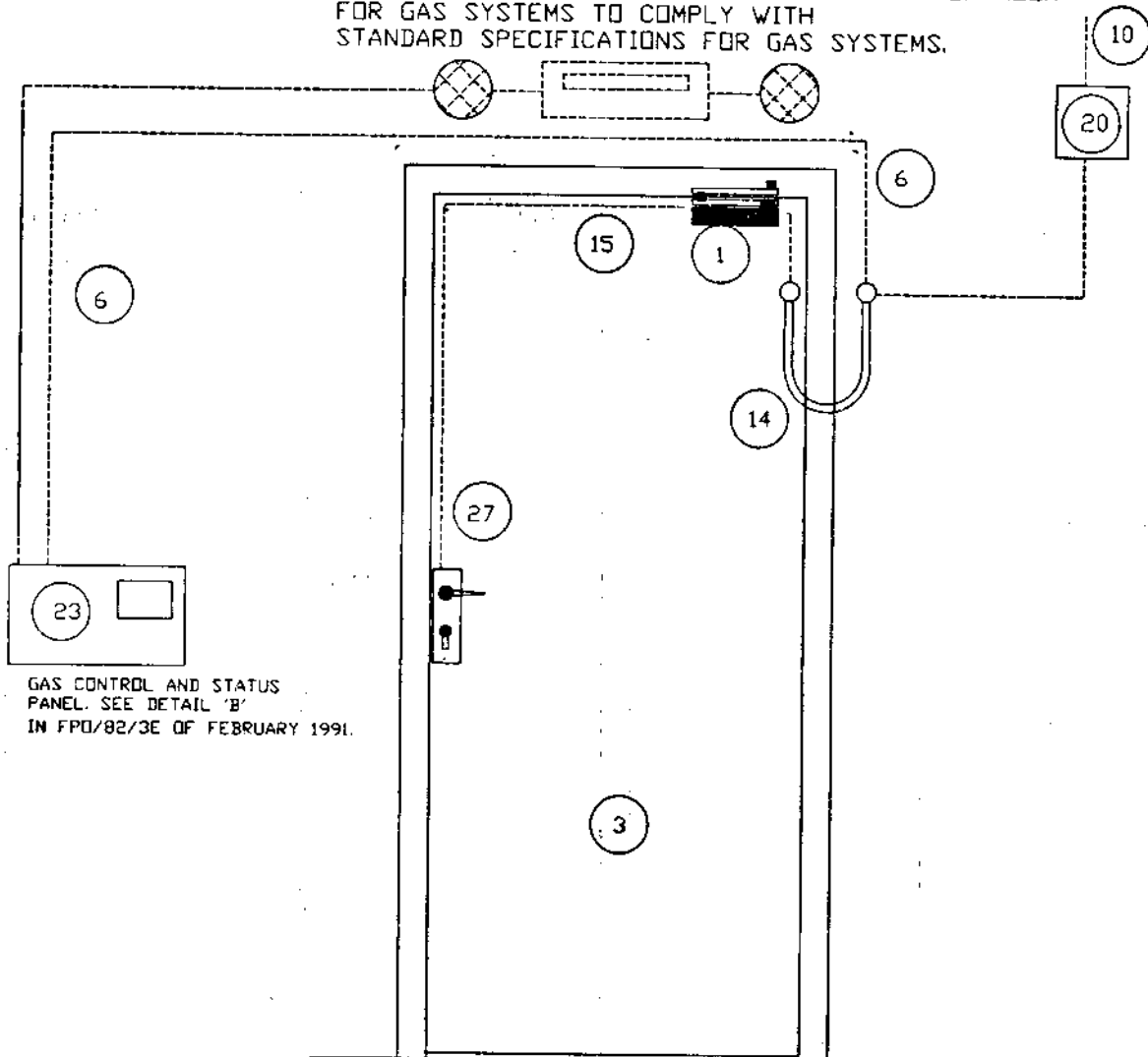
(BREAK GLASS UNIT - 21)

SINGLE DOOR WITH DOOR CLOSER WITH SAMPLE 24MS LOCK
AND GAS CONTROL EQUIPMENT AS REQUIRED.

S 300/2/7

NOTE : 1. THE BREAK GLASS UNITS ARE REQUIRED ON BOTH SIDES OF THE DOOR.
2. THE SAMPLE 24 MS IS USED WHEN GAS PROTECTED AREAS ARE SUPPLIED WITH ACCESS CONTROL.

WARNING SIGNS, ALARMS, ETC. ON THE INSIDE OF ROOM
FOR GAS SYSTEMS TO COMPLY WITH
STANDARD SPECIFICATIONS FOR GAS SYSTEMS.



CLAUSE APPLICABLE TO THIS DRAWING :

S320 (WIRING LOOP - 14)

\$300 (LOCK SET POWER SUPPLY - 20)(IF REQUIRED)

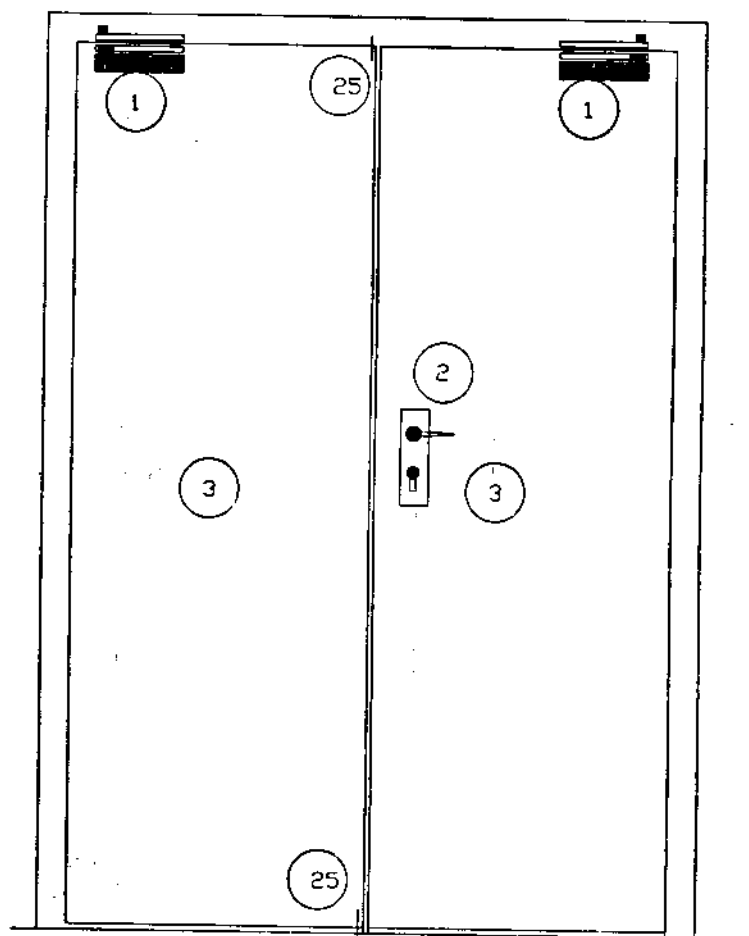
S300.3.1 (SAMPLE 24 MS - 27)

(GAS CONTROL AND STATUS PANEL - 23)

DOUBLE DOOR WITH DOOR CLOSERS AND SAMPLE 23 MS LOCK

S 300/3/1

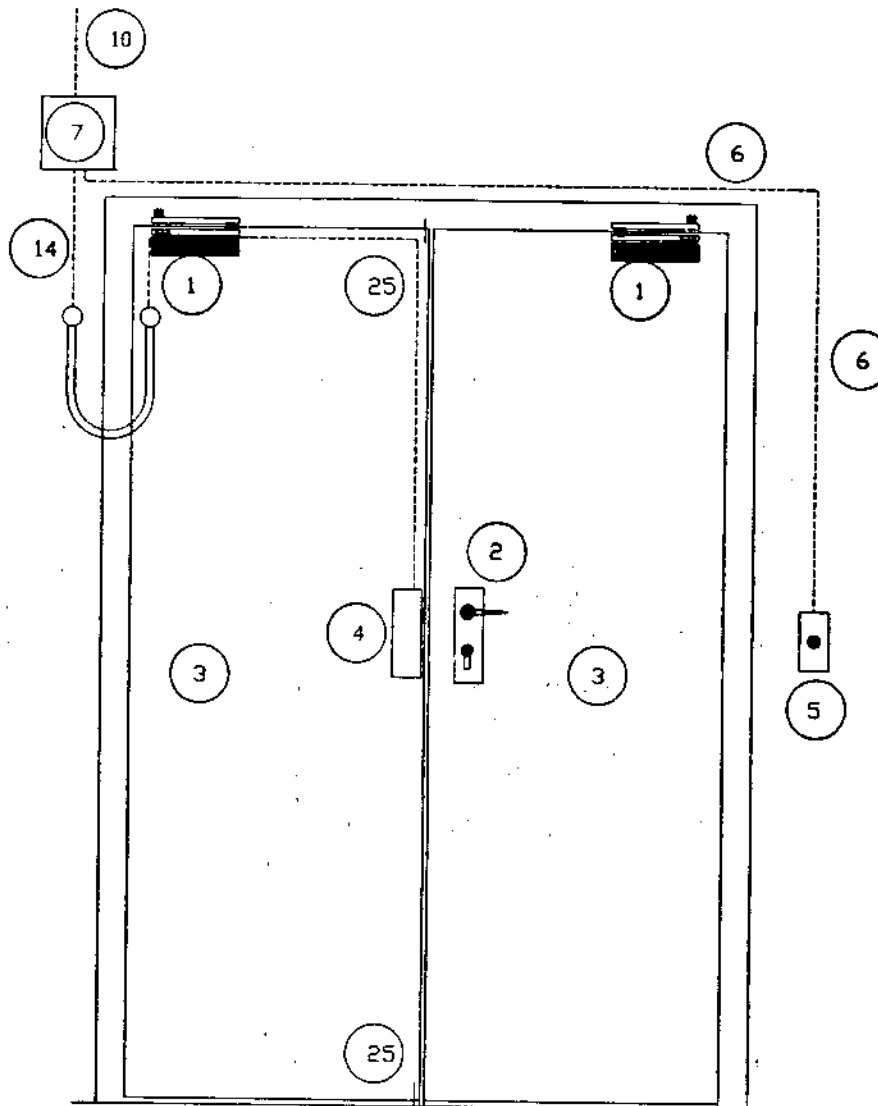
NOTE : THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED :

CLAUSES APPLICABLE TO THIS DRAWING :
S300.3.1 (SAMPLE 23 MS. -2)

DOUBLE DOOR WITH DOOR CLOSERS, SAMPLE 23 MS LOCK,
ELECTRICALLY OPERATED STRIKING PLATE AND PUSH BUTTON.

S 300/3/2

NOTE : THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED



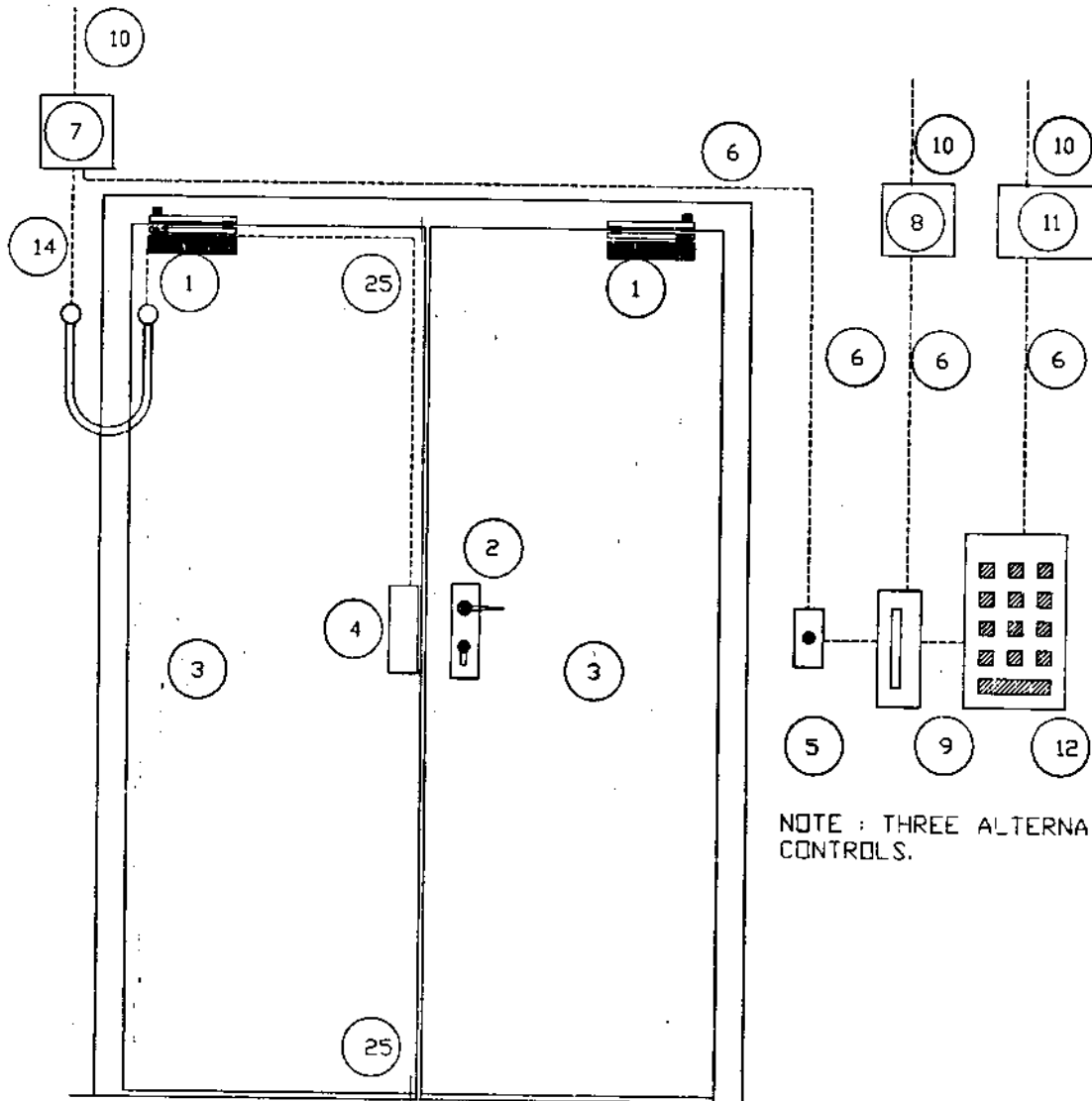
CLAUSES APPLICABLE TO THIS DRAWING :

- S300.3.1 (SAMPLE 23 MS LOCK - 2)
- S301 (ELEC. OPERATED STRIKING PLATE - 4)
- S301 (POWER SUPPLY TO ELEC. OP. STRIKE PLATE - 7)
- S310 (PUSH BUTTON - 5)
- S320 (WIRING LOOP - 14)
- (230 V MAINS POWER SUPPLY - 10)

DOUBLE DOOR WITH DOOR CLOSERS, SAMPLE 23 MS LOCK,
ELECTRICALLY OPERATED STRIKING PLATE, KEYPAD,
CARD READER OR OTHER CONTROL.

S 300/3/3

- NOTE : 1. THE MONITOR FACILITY OF THE SAMPLE 23 MS CAN BE USED IF REQUIRED
2. CONTROL ITEMS 5(BUTTON), 9(CARD READER) AND 12(CODE LOCK) ALL
HAVE THE SAME FUNCTION AND THE ITEMS TO BE USED MUST BE SELECTED
DURING THE DETAIL DESIGN OF SYSTEMS.
3. THE CODE LOCK SYSTEM CAN OPERATE EQUALLY WITH A SAMPLE 24 MS
LOCK OR 127 OR 128 LOCK SETS - SEE S300.3.1(h)



NOTE : THREE ALTERNATIVE
CONTROLS.

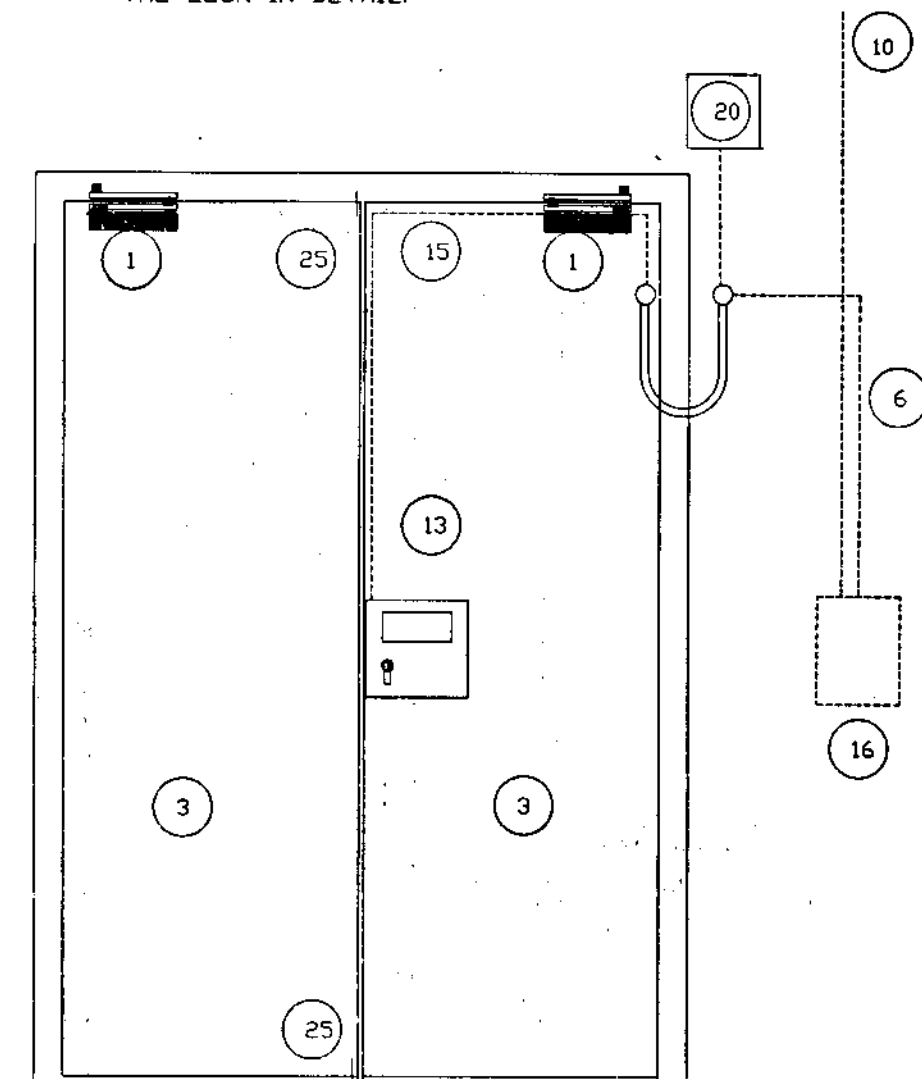
CLAUSE APPLICABLE TO THIS DRAWING :

- S300.3.1 (CODE LOCK SYSTEM, COMPRISING SAMPLE 23 MS LOCK - 2,
AND KEYPAD - 12)
S301 (ELEC. OPERATED STRIKING PLATE - 4)
S301 (POWER SUPPLY TO ELEC. OP. STRIKE PLATE - 7)
S310 (PUSH BUTTON - 5)
(230 V MAINS POWER SUPPLY - 10)
S101, 102 OR 103 (CARD READER - 9)
S120 (POWER SUPPLY TO CARD READER - 8)
S300.3.2.1 (POWER SUPPLY FOR CODE LOCK SYSTEM - 11)

DOUBLE DOOR WITH DOOR CLOSERS AND ALARM ESCAPE LOCK
SET SAMPLE 127 WITH CONTROL EQUIPMENT.

S 300/3/4

- NOTE : 1. REMOTE DEVICES ARE TO BE SELECTED FOR THE SAMPLE 127-E WHEN THE DETAIL DESIGN OF A SYSTEM IS UNDERTAKEN. ITEM 16 CAN BE A PUSH BUTTON, CARD READER OR CODE LOCK AND/OR A MONITOR PANEL TO REMOTELY MONITOR THE STATUS OF THE LOCK.
2. THE POWER SUPPLY(20) IS ONLY USED WHEN THE SAMPLE 127 IS NOT SUPPLIED WITH POWER FROM A MONITOR PANEL. THE DETAIL SPECIFICATION MUST SPECIFY THE POWER SUPPLY REQUIREMENTS OF THE LOCK IN DETAIL.



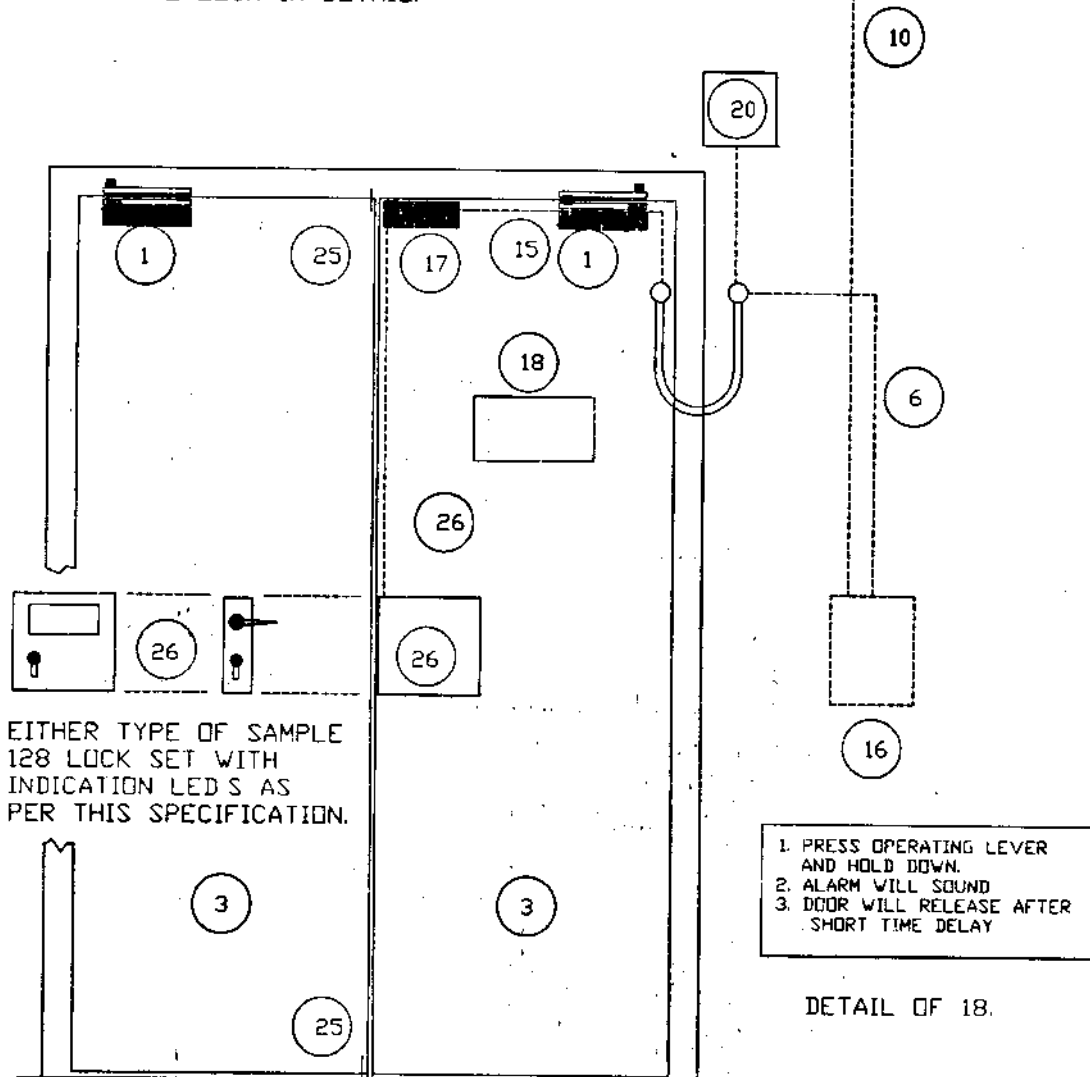
CLAUSE APPLICABLE TO THIS DRAWING :

- S300.3.1 (PWD SAMPLE 127 LOCK - 13)
S101, 102 OR 103 AS REQUIRED (CARD READER - 9)
S120 AS REQUIRED (POWER SUPPLY - 7)
S310 AS REQUIRED (PUSH BUTTON - 5)
S320 (WIRING LOOP - 14)
S330 AS REQUIRED (CONTROLS - 16)
S300.3.2 (LOCK SET POWER SUPPLY - 20)
(230 V MAINS POWER SUPPLY - 10)

DOUBLE DOOR WITH DOOR CLOSERS AND TIME DELAY ALARM
ESCAPE LOCK SET SAMPLE 128 WITH CONTROL
EQUIPMENT AS REQUIRED.

S 300/3/5

- NOTE : 1. REMOTE DEVICES ARE TO BE SELECTED FOR THE SAMPLE 128-E WHEN THE DETAIL DESIGN OF A SYSTEM IS UNDERTAKEN. ITEM 16 CAN BE A PUSH BUTTON, CARD READER OR KEYPAD AND/OR A MONITOR PANEL TO REMOTELY MONITOR THE STATUS OF THE LOCK.
2. THE POWER SUPPLY(20) IS ONLY USED WHEN THE SAMPLE 128 IS NOT SUPPLIED WITH POWER FROM A MONITOR PANEL. THE DETAIL SPECIFICATION MUST SPECIFY THE POWER SUPPLY REQUIREMENTS OF THE LOCK IN DETAIL.



CLAUSE APPLICABLE TO THIS DRAWING :

S300.3.1 (PWD SAMPLE 128 LOCK - 26)

S320 (WIRING LOOP - 14)

S330 AS REQUIRED(CONTROLS - 16)

S300.3.2.1(LOCK SET POWER SUPPLY - 20)

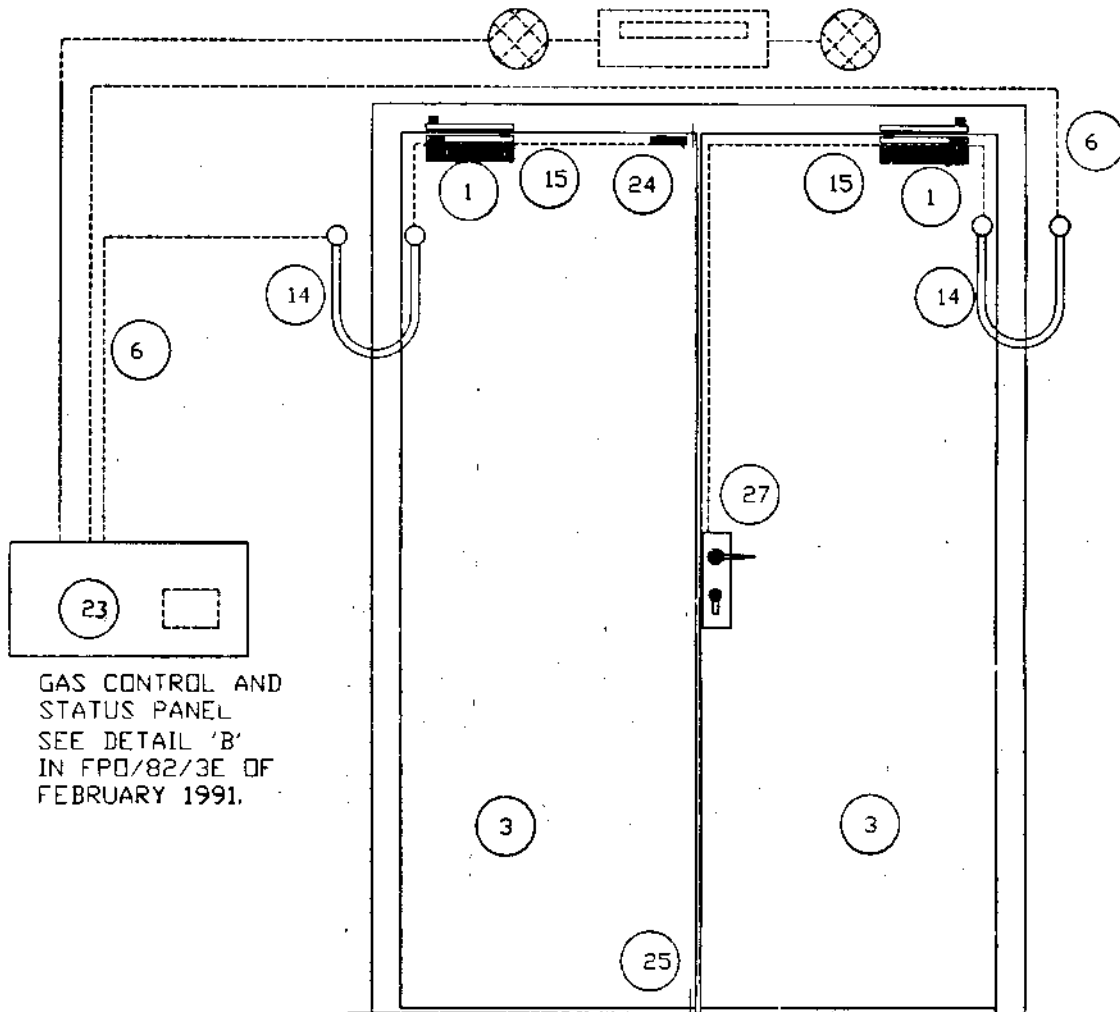
S300.3.3.4(ELECTROMAGNET FOR SAMPLE 128 LOCK SET - 17)

DOUBLE DOOR WITH DOOR CLOSERS, SAMPLE 24 MS LOCK AND GAS CONTROL EQUIPMENT AS REQUIRED.

S 300/3/7

NOTE : 1. THE BREAK GLASS UNITS ARE REQUIRED ON BOTH SIDES OF THE DOOR.
2. THE SAMPLE 24 MS IS USED WHEN GAS PROTECTED AREAS ARE SUPPLIED WITH ACCESS CONTROL.

WARNING SIGNS, ALARMS, ETC. ON INSIDE OF ROOM FOR GAS SYSTEMS TO COMPLY WITH STANDARD SPECIFICATIONS FOR GAS SYSTEMS.



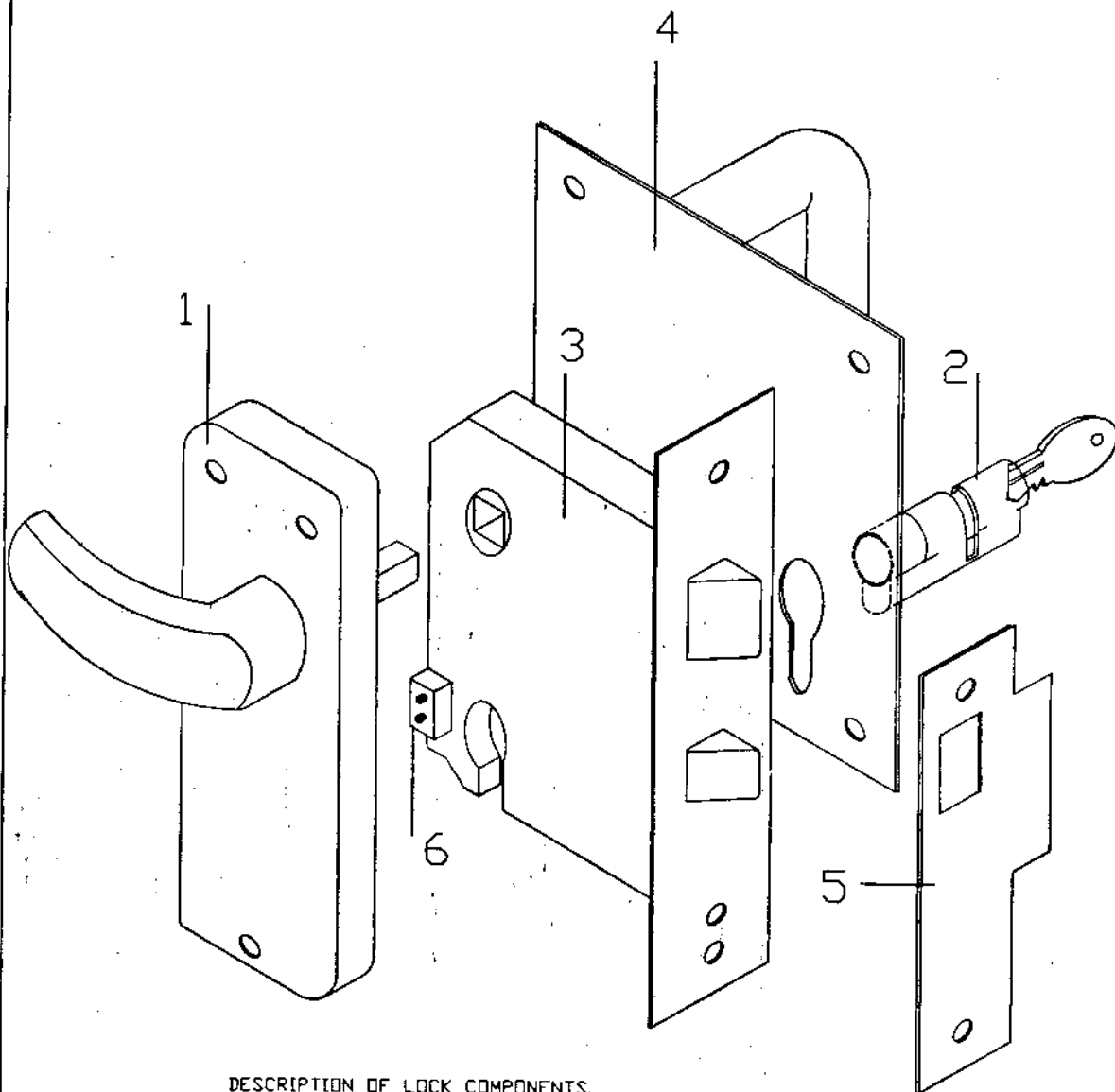
CLAUSE APPLICABLE TO THIS DRAWING :

S320 (WIRING LOOP - 14)
S300 (LOCK SET POWER SUPPLY - 20) (IF REQUIRED)
S300.3.1 (SAMPLE 24 MS - 27)

(MICRO SWITCH AS REQUIRED - 24)
(GAS CONTROL AND STATUS PANEL - 23)

SAMPLE 23 MS LOCK

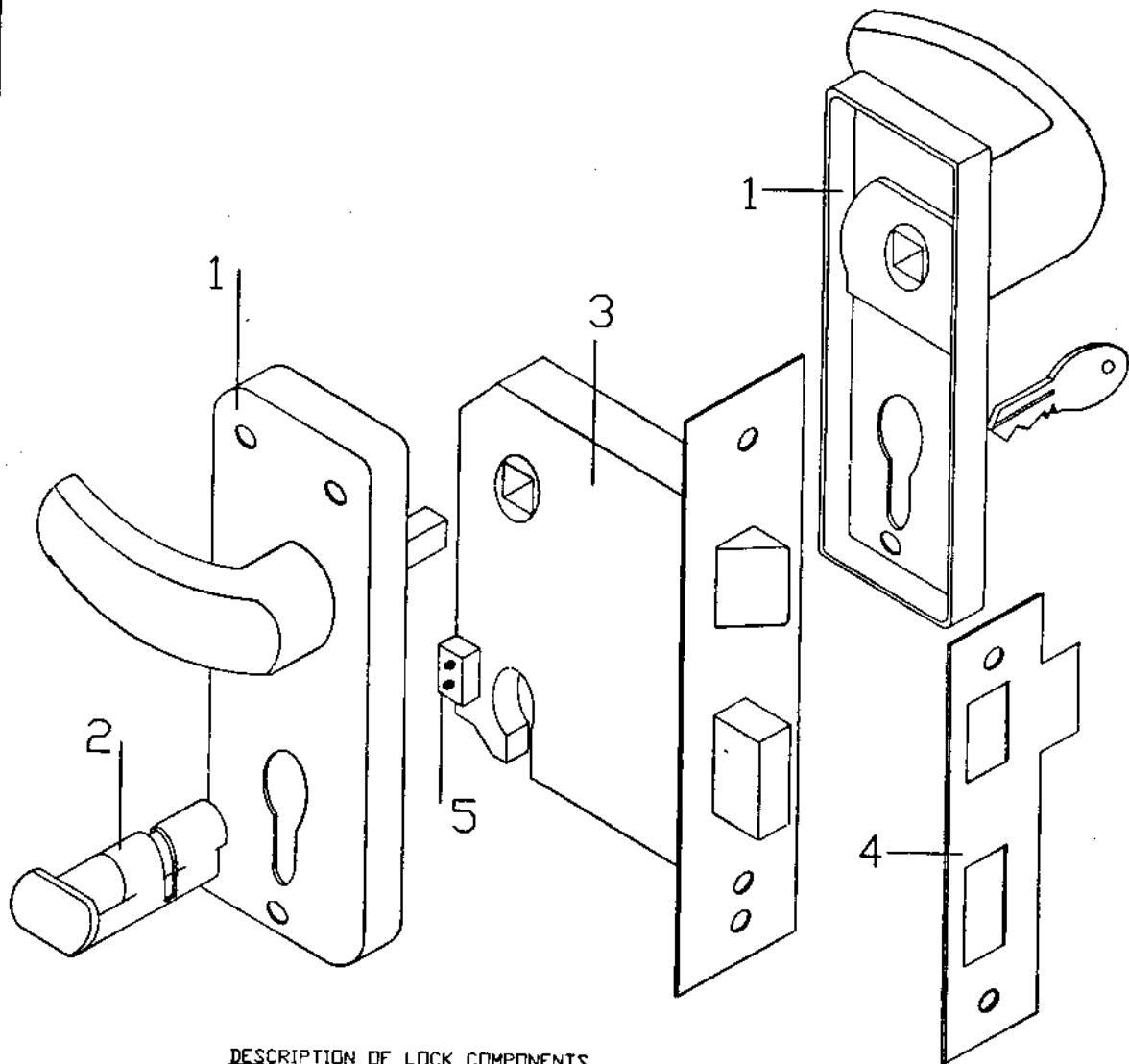
S 300/4

DESCRIPTION OF LOCK COMPONENTS.

1. LEVER HANDLE - RH
LEVER HANDLE - LH
2. S PIN KNOB CYLINDER AND KEYS TO UNLOCK DOOR FROM OUTSIDE ONLY.
3. EMERGENCY EXIT LOCK SAMPLE 23 - RH
EMERGENCY EXIT LOCK SAMPLE 23 - LH
4. PULL HANDLE - RH
PULL HANDLE - LH
5. STRIKER PLATE
6. MICROSWITCH(ES) AS REQUIRED.

SAMPLE 24 MS LOCK

S 300/5

DESCRIPTION OF LOCK COMPONENTS.

1. LEVER HANDLE - RH
LEVER HANDLE - LH
2. 5 PIN KNOB CYLINDER AND KEYS WITH THUMB TURN ON INSIDE OF LOCK.
3. CYLINDER DOORLOCK SAMPLE 24 - RH
CYLINDER DOORLOCK SAMPLE 24 - LH
4. STRIKER PLATE
5. MICROSWITCHE(S) AS REQUIRED.

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public works

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REPUBLIC OF SOUTH AFRICA

Standard Specification For Fire and Security Specification

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1 SCOPE

1.1 General Description and System Overview:

The contractor shall price for the supply, delivery to site, installation, programming, and commissioning for the complete electronic services installation as detailed in the document and indicated on the drawings.

This document describes the work to be done. The work shall include, but not be limited to, the following;

- TV System
- Fire detection
- Close Circuit Television System (CCTV)
- Public Address System (PA)
- Access Control

The installation will be done in the new areas to be erected on the premises. The electronic equipment routing is via a service duct centrally positioned in the building as indicated on the drawings. The electronic equipment will be integrated into existing infrastructure where possible.

All schedules and particulars required at tender submission must be completed by the Tenderer. Failure to comply with this requirement may render the tender liable for disqualification.

This contract is for the supply, delivery, storing on site, installation, testing and commissioning, handing-over and free maintenance during the defects liability period of all the subsystems.

The Contractor shall provide the final system design, workshop drawings, schematic and physical layouts and installation detail for approval by the Engineer before commencement of the installation.

The mention of a manufacturer in this specification indicated the type and functionality of the system required and equipment similar and equal to that type of equipment shall be acceptable.

All work shall be scheduled in liaison with the main Contractor to suit his master program.

Should the system proposed by the tenderer not be capable of performing the functions required, the contractor shall be required to provide an alternative system that conforms to the specification at his own cost and with no additional cost to the client.

1.2 Definitions

The definitions as set out in the Standard Specifications shall prevail.

1.3 Standards regulations and codes

1.3.1 Standards

The latest edition, including all amendments up to date of tender of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

- SANS 10139: Fire detection and alarm systems for buildings — System design, installation and servicing
- SANS 322: Fire detection and alarm systems for hospitals
- SANS 50054: Fire detection and fire alarm systems
- SANS 10142: The wiring of premises
- SANS 2220 – Electrical security systems
- The Occupational Health and Safety Act (Act No 85 of 1993).
- The standard specification not included (available on request)
- Manufacturer's specifications and installation instructions
- Local By-laws

The Contractor shall ensure that he is registered to execute work in the Rustenburg Metropolitan area.

1.3.2 Construction Program

The Contractor's program shall be co-ordinated with the program of the Principal Contractor and shall include allowance for adverse weather conditions, builders holidays and public holidays as specified in the Principal Contractor's conditions of contract.

1.3.3 Storage

The Contractor shall provide adequate and safe storage for all materials. All materials shall be stored or stacked in positions that will not interfere with other work in progress in the area.

1.3.4 Quality of materials

All materials supplied or utilized under this shall be new and unused. Only materials of first class quality and finish shall be utilized. All materials shall be subject to prior approval by the Engineer.

All materials shall be unconditionally guaranteed for a period of 12 months from the date of practical completion, which is first hand over. Where Supplier's guarantees are of a shorter duration than 12 months, the Contractor shall unreservedly agree to the extension and cession of all warranties and guarantees.

The Contractor shall replace any materials that are found to be defective during the 12 months defects liability period.

All materials shall be the best of their respective kinds described in the specification and shall in every way be suitable for the purpose for which they are intended to be used.

All materials and equipment supplied shall fully comply with the requirements laid down in this specification and the latest editions of the relevant SABS, BS, IEEE, EIA, ISO and DIN specifications or as otherwise specified

Any item not complying with the following shall be substituted with an approved new component at no cost to the Employer, the acceptance or rejection of such work being determined by the Engineer

The Contractor shall maintain adequate and effective quality control standards while manufacturing or installing the specified equipment

The Engineer shall have the prerogative of inspecting the equipment in the Contractor's factory or on site, or to call for manufacturer's test certificates of such equipment at any reasonable time. The Engineer shall check accuracy of dimensions, completeness, configuration, quality of workmanship, correct identification, proper use of and type of materials, equipment used and finishes to equipment.

Such approval shall not relieve the Contractor of his responsibility for design, detail and dimension and shall in no way exonerate him from his liability to carry out the work in accordance with the terms of the contract and specification.

1.3.5 Competence of Personnel, Workmanship of staff

All work shall be executed and supervised by suitably qualified staff. Only "ACCREDITED PERSONS" shall be permitted to carry out and supervise work.

The Contractor shall at all times have an adequate number of employees available during the construction period to ensure that the work does not delay the construction program. The Engineer reserves the right to call upon the Contractor to remove any workman or representative who, in his opinion, is incompetent or whose presence would have a deleterious effect on the progress of the Works.

The works shall be supervised by a qualified and experienced site agent.

The contract shall be executed with the best workmanship in a workmanlike manner to the satisfaction of the Engineer.

The Contractor shall be informed in writing should the equipment or workmanship not be to the satisfaction of the Engineer and thus not acceptable. In such a case the Contractor shall replace the equipment and/or perform the remedial work immediately at the cost of the Contractor. All rejected material shall be removed from site.

The Engineer may upon request of the Contractor visit existing installations or prototype assemblies in the factory to determine that the workmanship is of the required standard.

If required the Contractor shall provide the Engineer with equipment or facilities to examine all equipment and if necessary test this equipment to preclude malfunctioning of the equipment.

The Contractor shall be held liable for all damage to other services and if such damage is not repaired to the satisfaction of the Engineer within a reasonable period the Engineer shall be entitled to appoint another Contractor to repair such damage and debit the account of the Contractor.

1.3.6 Co-ordination of services

The Contractor shall be responsible for the on-site co-ordination with the Principal Contractor and other sub-contractors. Due allowance shall be made for this liaison and on-site co-ordination in the tender price.

1.3.7 Finishing and tidying

In view of the concentration of construction and other activities likely to be experienced during the Contract period, progressive and systematic finishing and tidying will form an essential part of this

Contract. On no account will soil, rubble, materials, equipment or unfinished operations be allowed to accumulate in such a manner as to unnecessarily impede the activities of others. In the event of this occurring the Employer will have the right to withhold payment for as long as may be necessary in respect of the relevant Works in the area(s) concerned, without thereby prejudicing the rights of others to institute claims against the Contractor on the ground of unnecessary obstruction.

Finishing and tidying shall therefore not be left to the end of the Contract, but shall be a continuous operation.

1.3.8 Existing work and services

The Contractor is responsible for obtaining information regarding services and the existing works which may be affected by the new works. Before the Contractor commences operations, he must discuss with and have the approval of the Project manager concerned regarding the method he proposes to use for the safeguarding of any services and existing works he may encounter during construction. The cost of all precautionary measures, which may be necessary to ensure the safety of such services and existing works, as well as the protection of all persons, shall be borne by the Contractor. Any alteration to services, which may be required, shall be carried out by the Authority concerned at the expense of the Contractor. The Contractor shall be held responsible for any damage, injury or accident caused as a result of his failure to take the necessary precautionary measures.

1.3.9 Electrical Supply

The electrical supply required by the Contractor will normally be made available by others, unless otherwise specified in the project specification. This will be 230V AC, $\pm 10\%$, 50 Hz.

The Contractor must carry out and deliver the installation in such a manner that it complies with the Supply Authority's specifications regarding voltage, current and frequency.

Only qualified and registered installation electricians accredited in terms of the Occupational Health and Safety Act (Act no 85 of 1993) may connect systems to permanent electrical supplies, e.g. installations fed from an isolating switch. The contractor must issue a certificate of compliance before the system will be commissioned / taken over.

1.3.10 Surge protection

The lightning and switching transients and the regulation of the available 230V AC supplies will be as for a normal industrial supply.

Unless otherwise indicated in the Project Specification, it may be assumed that the electrical installation will be surge protected to a residual voltage of 1,5 kV max for a 8/20 μ s surge current, and that the electrical system earth resistance will be $\leq 5 \Omega$ at the distribution board feeding this installation (1 Ω at substation/transformer).

The prospective contractor must inspect the electrical installation at the site familiarization inspection and include in his tender a certification that he is satisfied with the earthing and other services provided.

The Contractor has to allow for additional surge suppression and voltage stabilization equipment if this is required to protect his equipment or to guarantee its correct operation.

Equipment which is connected to signal lines of any type which run for any distance outside a building must be surge protected to survive 8/20 μ s current impulses with maximum amplitude of 10 kA when applied in common mode between the signal lines connected together and earth.

In addition, the protected equipment must be able to survive 8/20 μ s current impulses with maximum amplitude of 2 kA when applied in differential mode.

The surge protection equipment may be built into the equipment being protected. If the provided internal protection is inadequate to meet this specification, then additional external protection has to be provided.

Equipment which is connected to signal lines of any type of which the entire length of the run is within the same building must be protected as above, except that the maximum amplitude for the common mode test shall be 2 kA and the maximum amplitude for the differential mode test shall be 500 A.

Surge protection devices must be chosen in such a way that the protected circuit shall still function to specification in spite of the introduction of series and/or shunt impedances by the protecting devices.

1.3.11 Protection of other services and structures

The Contractor shall take all the necessary precautions to protect existing services, finishes and structures during the execution of the Contract, and shall be fully responsible for all repairs and damages thereto. The costs for any repairs of damages shall be recovered from the Contractor.

The Contractor shall also exercise extreme care when excavations are made, to avoid damage to existing or newly installed services. Any damages to other services shall be rectified forthwith and the costs for the rectification will therefore be recovered from the Contractor.

Any resulting damage to completed finishes will be rectified to the satisfaction of the Principal Contractor and the Project manager, at the Contractor's expense.

Extreme accuracy will be required during marking out to ensure that the conduit entries exiting the floor slab and walls are positioned correctly.

1.3.12 Trunking

Wire mesh trunking, where required, shall be the hot dip galvanized Cabstrut type complete with elbows, tees and covers. The width shall be as specified on the relevant drawings.

1.3.13 Conduits

Internal conduits shall be Bosal-type galvanized steel and installed flush inside walls and slabs and surface mounted in ceiling voids. No conduit installation on the wall surfaces shall be permitted in the building.

Conduit work under open roof structures and inside ceilings shall be done in a rectangular grid pattern. Steel saddles shall be used inside ceilings. Caddy clamps shall be used on roof purlins; maximum spacing of saddles and clamps shall be 750 mm.

All external conduits exposed to sunlight or rain shall be Bosal-type galvanized steel. External draw box covers shall be sealed with white silicone after the installation has been completed.

Chasing where applicable, shall only be done with a twin-blade chasing angle grinder or approved methods. Prior approval must first be obtained from the Architect or Engineer before any chasing work is carried out.

All conduits to detectors, sounders and strobes shall end in round steel boxes.

1.3.14 Submittal during contract period

The Contractor shall submit complete documentation showing the type, size, rate, style, catalogue number, manufacturer's names, photos, and/or catalogue data sheets for all items offered enabling the Engineer to ensure compliance of the equipment with this specification.

This information shall be submitted to the Engineer within fourteen (14) calendar days after award of this contract and shall be subject to his approval.

Equipment must not be ordered without this approval.

Furthermore, the Contractor shall submit for approval the complete layout of the entire system, showing wiring and all equipment.

All equipment proposed as equal to that specified herein, shall conform to the standards herein.

For equipment other than specified, the Contractor shall supply proof that such substitute equipment does in fact equal or exceed the features, functions, performance and quality of the specified equipment. However, the Engineer shall have the final decision of acceptance and his decision shall be final.

The approval of drawings shall not relieve the Contractor of his responsibility to supply the installation according to the requirements of this specification or to obtain the highest quality of craftsmanship possible.

1.3.15 Project execution

The Contractor shall be responsible for the design, co-ordination, prototyping, graphic screen representations, manufacturing, supply, delivery, transportation to site, installation, testing, commissioning, test running, documentation, training, recommended spare parts list, defects liability, maintenance, warranty and other work tasks as more particularly described in this Specification and on the Drawings of the Systems.

The Contractor shall provide all necessary cabling, enclosures, mounting accessories, interfacing elements and components which are required for the works. The cable containment shall be supplied by others.

The Contractor shall furnish all labour, supervisors, materials, tools, equipment, storage, permits, certificates, drawings, temporary work, inspection, testing and incidentals necessary to complete the works in a proper, thorough and skilful manner.

Detailed equipment specification, where provided, shall dictate the minimum standard and grade of equipment and material required in this Contract. Equipment/material performing similar functions to the equipment/material specified shall meet or exceed the same specification.

Provision of the equipment and material specified alone may not guarantee that each system will meet the functional and operational requirements. The Contractor shall be responsible for the compatibility and sufficiency of the equipment and material and their application in each system.

The Contractor shall provide certified documentation of the materials, equipment and final design of the management systems, where necessary to obtain the approvals required by the local authorities.

The Contractor shall provide custom-made and standard Testing & Commissioning tools, dummy units and simulation units which are required for the testing and commissioning of the systems.

The Contractor shall provide all hardware and software of the development systems which are used for the development and modification of software programs, databases, logic and GUI of all the computers, PLCs, I/O, and workstations provided for the systems.

The Contractor shall comply with all the software management and engineering requirements as specified.

Effective means for GUI navigation and for issuing control commands shall be submitted for review.

The Contractor shall be responsible for coordinating his works with other interfacing contractors and shall also make the necessary adjustments to meet the control requirements of the interfacing contracts.

The Contractor shall consolidate a schedule of all interlock requirements for review by the Engineer.

All graphical user interfaces and all monitoring and control man machine interfaces including push buttons, lamps and key switches shall be submitted for review.

1.3.16 Labelling of equipment

All equipment shall be labelled with a unique number on a label fixed to the equipment. These numbers shall correspond with that on the drawings and in the manuals.

1.3.17 Inspections

The Engineer's or Client's representative will inspect the installation at any time. All inferior, unsuitable, unacceptable or rejected work shall, if indicated by the inspecting officers or the Engineer, be removed and shall be rectified by the Contractor at his own expense. Under no circumstances will these inspections relieve the Contractor of his obligations in terms of the document nor will these inspections be regarded as final approval of the works or portions thereof.

Where, inspections are requested by the Contractor, the Engineer's or Client's inspection shall only be carried out after the Contractor has carried out his own preliminary inspection to ensure that the

Works are completed and comply with the documents. The Engineer's or Client's inspection shall therefore not be regarded as supervision, fault listing, quality assurance or site management.

1.3.18 Site tests and commissioning

The contractor shall commission and test all the systems as required by the standards and specifications and issue the results to the Engineer.

After submission of the test results, the Contractor shall notify that the installation is complete, tested and in working order. The Client or the Engineer will witness the re-testing of the installation.

1.3.19 Certificate of compliance

All work covered under this contract or that has to be carried out on site, must be executed by a qualified and fully representative person. Only persons registered will be accepted to carry out the installation work. After completion of the contract the Contractor shall submit to the Engineer a certificate of compliance in terms of legislation prior to final payment being processed.

1.3.20 As-built drawings and documentation

The Contractor shall prepare as-built drawings of the complete installation layout.

The contractor shall provide an Operating and Maintenance manual with a full description of the system. Three sets of maintenance manuals, drawings and block plans converted to Electronic format on CD shall be provided.

The contractor shall provide a complete list of all the devices of the system providing at least the information indicated in the table below.

LIST OF DEVICES			
Name of system			
Device no.	Type of device	Zone no.	Physical position (include room no. or area description)

A complete list of inputs and outputs to the system excluding the devices indicated in the list of devices above and typically providing at least the information indicated in the table. Examples of other inputs and outputs are:

- Switch off air conditioning when a fire alarm occurs in zone 2.
- Activate gas release when two fire alarms occur in the computer room.
- Give an alarm when there is flow in the sprinkler piping.

1.3.21 12 Month defects liability period

The equipment and installation supplied under this contract shall be guaranteed for a period of twelve months from date of acceptance by the Engineer in all respects and commissioned for continuous service. The tender price shall include for the above.

The defects liability will be for a period of twelve months, calculated from the date of issue of the Certificate of completion by the Engineer. Retention funds (if applicable) will be reduced to 5% upon the commencement of the defects liability period. The balance of the retention money will be paid out after the lapse of the defects liability, provided the installation has in the opinion of the Engineer been in satisfactory working order during this period.

1.3.22 Training

The Contractor shall provide training to operators and maintenance personal on the principles and use of the systems.

1.4 TV System

The TV subsystem consists of the supply, modify and installation of a 32" LCD TV's at the indicated locations and quantity list.

1.5 Fire Detection

1.5.1 Equipment specification summary

This specification describes the Project requirements for the Automatic fire detection and alarm system.

All schedules and particulars required at tender submission must be completed by the Contractor. Failure to comply with this requirement may disqualify the tender.

The contractor shall allow for the supply, delivery, installation and commissioning of a complete fire detection and alarm system. Please note that there is a current system installed. The new fire detection system will consists of a new control panel that utilizes the existing system sensors. This contract only allows for fire detection sensors in the new building sections and must incorporate the existing sensors from the rest of the building as is. Allowance should be made for expansion of the system to incorporate the complete building in the future.

The system shall include, but not be limited to, the following:

- Fire and/or smoke detection units
- Audible alarm devices
- Alarm indicators
- Fire alarm panel
- Power supply equipment
- Wiring
- I/O units

1.5.2 Compliance with regulations and standards

This specification shall be read in conjunction with the standard specification for the automatic fire detection and alarm installation which forms part of this document.

The installation shall further comply with the requirements of SANS 10139.

The automatic fire alarm system must serve the dual function of life and property protection and shall be set up for full building evacuation under double knock conditions.

1.5.3 Electrical supply

The electrical supply shall be made available at the relevant fire alarm panel position by the electrical contractor.

The power supply feeding the fire alarm system is taken from the emergency generator system. The contractor shall allow in his price for the supply and installation of suitable backup batteries and surge protection in the fire alarm panel.

1.5.4 Equipment materials and installation

The equipment materials and installation shall conform to the standard specification, except where otherwise detailed in this section of the specification.

1.5.5 Name plates and labels

In addition to the requirements of the standard specification, the following requirements shall be adhered to.

All field devices connected to the fire alarm panel shall be labelled to indicate floor, loop and device number.

All fire alarm panels and repeater panels shall be labelled. The final naming convention shall be advised on site.

1.5.6 Interfaces and ancillary equipment

The fire alarm panel shall interface with the following equipment:

- HVAC equipment
- REMRAD interface to the fire brigade (in existing hospital building)
- Access control system
- PA System

1.5.7 System requirements

The fire alarm panels must be of analogue addressable the type. The automatic fire detectors and manual call points which ensure detection are connected in closed loops to the fire alarm panel and are identified as single elements. Each floor of the building shall be serviced by loops taken to a central fire alarm panel located in the service duct on the ground floor of the building. As required by the building structure the detectors and manual call points are grouped software wise in logical zones, which shall be determined by the Engineer on site. The fire alarm panel shall be able to manage at least 64 different zones.

The fire alarm system shall operate on a double knock principal. In the event of a fire in any zone, the entire building shall be evacuated.

The fire alarm panel shall be entirely modular using modules which are locked into a rail mount. It shall be impossible to connect a module incorrectly onto a rail. The rail shall provide the modules with power and internal communication with the panel controller.

The modules shall be sealed in a plastic housing protecting the electronic components against external factors. Modules shall be hot swappable, and shall not require reprogramming of the system once replaced.

External Wiring shall be connected via removable terminals which are connected to the modules. Terminals and connections shall be clearly marked.

The panel shall have a touch screen or similar interface with at least the following functionality:

- reset of single detector, detector zone or the complete system
- stop of internal buzzer
- stop of the signaling devices
- (un)bypass/(un)block detectors or zones of detectors
- toggle day/night mode
- read out the event log
- set date and time
- set detectors / detector groups in test mode
- change the detection pattern of multi criteria fire detectors
- change the description of a logical zone or detection point

Events shall be stored in a flash memory on a FIFO basis. Up to 1000 events shall be stored. Each event is stored with:

- an unique sequence number
- date and time of the event
- logical address of the element or detection point
- description of the element or detection point

The users can be divided in 4 different groups. Depending on the user level it is possible for the operator to carry out certain user functions. The user functions and groups shall be in accordance with EN54 parts 2.

In total at least 10 users can be created. Logging in of the users shall be by means of password protection.

1.5.8 Power supply equipment

That power supply equipment shall be integrated in the fire alarm panel. The panel shall be fitted with a battery to offer 48 Hours Autonomy under normal operating conditions and 60 Minutes Autonomy under fire conditions.

1.5.9 Field device wiring

The automatic fire alarm system shall be a two wire system. The wiring of the system shall comply with relevant IEC standards. FR20 cable will not be accepted.

1.5.10 Global repeater panels

Two Global Repeater Panels shall be installed, one in each of the main entrance lobbies. It shall be possible to view, accept and silence alarms from the repeater panels.

Programming of the system shall only be possible from the main Fire Alarm Panel.

1.5.11 Detection devices

Fixed point fire detectors shall be installed in the positions indicated on the relevant drawings.

Fire detectors shall mainly consist of optical detectors as well as heat detectors. The detectors shall be mounted on the ceiling tiles in accordance with the standard specification. Recessed detectors to be used in seclusion area.

Heat detectors installed in the kitchen and plant rooms shall be of the rate of rise type.

Audible fire alarm devices (analogue addressable) must be suitable for both alert and evacuation sounding.

Manual call points must be surface mounted.

Green Break Glass Units shall be allowed for in the positions indicated on the drawings to disconnect power to the Maglocks or Shear Locks and release the doors.

1.5.12 Special functions

The fire alarm system shall be interface to with the public address system for voice evacuation purposes specified elsewhere in this document.

The fire alarm shall furthermore interface with the HVAC system and damper control where required. Please note that the HVAC interface locations is in different areas of the building as indicated on the drawings.

The fire alarm shall also release all door locking mechanisms in the event of a fire.

1.6 Closed Circuit Television System (CCTV)

1.6.1 System overview

The contractor shall allow for the supply, delivery, installation and commissioning of a fully IP based Closed Circuit Television (CCTV) system in the new building section. The system shall consist of cameras positioned as indicated on the drawing. Please note that this is a small stand alone system with potential future expansion as the existing CCTV system in use is analogue based.

The system shall be an IP based system but does not necessarily have to be an HD system. As a minimum a H.264 compression format shall be supported.

Leading brand IP Video Management hardware shall be provided, and the Contractor is required to submit the make and model of proposed CCTV system components as part of the Clause by Clause compliance document provided with this tender, which shall be completed and submitted as part of their tender submission.

The system shall include the necessary Surge protection, power supply and any additional hardware that may be required to make the installation complete.

The tendered rate is deemed to be fully inclusive of all software, licenses, hardware and accessories required to make the system complete.

1.6.2 Cameras

All cameras shall be of high resolution colour cameras using advanced digital signal processing and shall be powered over the Ethernet.

Internal Cameras shall be of the fixed dome type with Varifocal Lens, Auto Iris and 2.8 to 10mm F1.2 lens.

The camera layout is indicated on the drawings.

1.6.3 System control and storage

The system shall be controlled by a single management software component to be installed in the CCTV control room adjacent to the Boardroom in quadrant 3 of the building.

The system shall have a SCSI storage array with a minimum capacity of 8TB split into 8 different drives. The management software shall have a storage management capability to ensure that data is spread between all the drives to minimize loss in the event of a drive failure.

1.6.4 Network equipment and cables

The IP based video solution shall be networked via a 1GB High Speed Security Ethernet network. The video camera data should be fed into its own switch to improve data management. The network shall be installed in a star topology with the star point being situated in a common area for the group of cameras. Each unit shall be equipped with a sufficient number of 24-port Gigabit 10/100/1000 Managed Ethernet switches with a minimum of two 1GB uplink ports. Sufficient Switches shall be provided to enable the termination of all devices provided. A fibre optic link shall be networked via fibre optic converters to the VCR room as indicated on the drawing. The contractor shall supply and install all cables, enclosures, switches and any other components to make the system complete.

In order to minimize traffic on the 1 GB uplink ports, the allocated recording stream on each of the Direct IP cameras or IP Video Servers shall be assigned to the IP address of the Network Video Recorders within the local subnet.

The Network specification is as follows:

a) Media

Distance <100m: Ethernet Category 6 – UTP

Distance >100m: Fibre Optics – 100Base-FX, 850nm Multimode

Conversion Mod: TX/FX Multi Mode/Plus-SC

b) Switch Specification

1. Port Configuration: 24x 10/1000 Base-T Auto-sensing Gigabit Ports

2x SFP Fibre Ports

Auto-Negotiating, Duplex Mode

- Port Mirroring, Broadcast Storm Control
2. Performance:
 - 136 Gbps Switching Capacity
 - 95 Mpps Forwarding Rate
 - Minimum 8000 MAC Addresses
 - 256 MB CPU SDRAM
 - 32 MB Flash Memory
 3. Availability:
 - Spanning Tree (IEEE 802.1D)
 - Rapid Spanning Tree (IEEE 802.1w) with FLink Support
 - Multiple Spanning Trees (IEEE 802.1s)
 - Virtual Redundant Routing Protocol Support
 4. Management:
 - Web based Management Interface
 - CLI accessible via Telnet
 - SNMPv1, SNMPv2c and SNMPv3 support
 - BootP/DHCP IP address management support
 5. Quality of Service:
 - Layer 2
 - 8 Priority Queues per port
 - Adjustable Weighted-Round-Robin (WRR)
 6. Security:
 - IEEE 802.1x based edge authentication
 - Switch access password protection
 - Port-based MAC address alert and lock-down
 - IP address filtering for management access via Telnet, HTTP, HTTPS/SSL, SSH and SNMP
 - RADIUS and TACACS+ remote authentication for switch management access
 - SSLv3 and SSHv2 encryption
 7. VLAN:
 - VLAN support for tagging and port-based as per IEEE 802.1Q
 - 256 VLAN support
 - Dynamic VLAN with GVRP support; Private VLANs

1.6.5 Network racks

Racks, also called cabinets, for housing electronic equipment shall be standard 483mm (19") racks fitted with guides to slide into the board or console framework on sliding rails. The racks shall be manufactured of an extruded aluminium framework.

Each rack shall have a nominal width of 483mm but the depth and height may vary according to standard multiples for housing the specified electronic equipment in each particular case.

Racks shall be installed in individual cubicles or sections of the control consoles. Such cubicles shall be provided with extruded aluminium sub-frames fitted with the required support brackets and sliding rails to house the racks in a vertically tiered fashion.

A locking screw shall be provided for each rack to lock the rack in its normal operating position.

Two individual U-type slider rails shall be provided for locating and housing each printed circuit board (PC board) in the rack.

These slider rails shall be manufactured of extruded aluminium or suitable glass fibre bonded synthetic material or equivalent and pairs shall be installed in a vertical configuration so that frames of PC boards slide into the rails in a vertical fashion.

Each PC board shall be provided with two guide pins or guide buffers engaging in two corresponding sockets or notches in the rack to ensure that male and female sockets mate correctly.

1.6.6 Monitoring stations

As the system is a stand alone system only one monitor will be provided at the VCR room.

1.6.7 Network Video Recorder (NVR)

The selected NVR shall be installed with the PA equipment in the server room situated at the hospital main entrance area.

The NVR will offer a complete video surveillance solution that will be scalable from one to hundreds of cameras that can be added on a unit-by-unit basis.

The preferred recorder is a Hikvision DS-9632NI-ST:

- 32-Channel Embedded NVR (Channels: 32 x VGA / 24 x 720p / 12 x 1080p @ 25fps)
- 80Mbps input, 160Mbps output
- Self-adaptive dual Giga-bit LAN interface
- Dual IP
- Load balancing, network redundancy
- H.264/MPEG4, HDMI, VGA & CVBS output, RS485, RS232, CVMS
- Up to 32TB internal storage
- Two-way Audio
- 19" 2U Rack mount chassis

1.7 Public Address system

1.7.1 Equipment specification summary

This contract is for the supply, delivery, storing on site, installation, testing and commissioning, handing-over and free maintenance during the defects liability period, of the complete Public Address (PA) and voice evacuation system as indicated on the drawings.

The System shall consist of 19" Rack mount master controller. The 19" rack mount head-end equipment shall be installed with the CCTV equipment in the server room situated at the hospital main entrance area, and shall be capable of supporting a minimum of 16 sub-networks per master.

The system may consist of, but not be limited to:

- Microphones
- Pre-amplifier/mixers
- High-pass filters
- Automatic gain limit circuits
- Tone generators
- Amplifiers
- Power supplies
- Equipment racks
- Zone selection and control panels
- Loudspeakers
- Fire alarm interface

The system must interface to the new Avaya G450 SB300 PABX system that is currently being installed.

1.7.2 19" Rack master controllers

The tendered rate shall include full compensation for the Supply, installation and commissioning of a 19" rack mount master Intercom Controller including all necessary accessories, configuration tools, software and applicable licensing to make the installation complete.

The Master Controllers offered shall be modular in design with the following features as a minimum:

- Direct Ethernet connectivity
- Support for standard VoIP protocols including SIP
- Support for a minimum of 1024 Intercom Stations per master controller
- Support for a minimum of 32 Isolated Network ports
- Direct PABX connectivity
- Full Duplex Communication between multiple Stations
- Direct Integration with the Security Management System offered

1.7.3 Compliance with regulations and standards

The installation and equipment must comply with all the standards and regulations as specified in the standard specification for public address systems.

The project specification must be read in conjunction with the standard specification. In case of discrepancies, the project specification takes precedence over the standard specification.

1.7.4 Electrical supply available

The electrical supply for the system shall be made available by the electrical contractor.

The power supply for the PA system shall be taken from the UPS power supply and therefore no further search protection shall be required on the electrical supply.

1.7.5 Functional requirements

The public address system must be configured as described below and provide the following functionality.

The public address system shall be configured as a multi-zone system with zone selection capability. The building shall be divided into zones. The master calling station shall be located at the reception area in the main foyer of the hospital.

Remote calling should be interfaced with the telephone system.

It shall be possible to make an announcement to a single zone, multiple zones or all zones simultaneously.

1.7.6 Power supplies

Custom made, loose standing or integrated power supplies supplied with equipment and which are intended to be plugged into the mains supply, must comply with the requirements of the standard specification and the requirements listed below.

1.7.7 Enclosure and installation

Install the amplifier, power supply and peripheral equipment shall be installed in the service duct on the Ground Floor.

1.7.8 Microphones

The microphone output must match the pre-amplifier circuit provided with regard to impedance, balanced/unbalanced output and sensitivity.

1.7.9 Desk stand microphones

Desk stand microphone shall be installed in the following areas:

- Reception desks

The microphone cable must be at least 1.5 m long.

1.7.10 Zone selection panel

The zone selection panel must comply with the requirements of the Standard Specification for Public Address Systems.

A zone selection panel shall be installed at each of the locations mentioned above.

1.7.11 Loud speakers

Loudspeakers shall be provided and installed in the positions indicated on the drawings.

Speakers are to be supplied according to the drawings, as follows:

- Ceiling Mounted: Cut-outs in suspended ceiling panels and other fixed ceiling materials must be made carefully, not larger than absolutely necessary, using proper tools (e.g. drill and jigsaw) and with due care and diligence.
- Wall Mounted: Mainly in stairwells. Speakers to be mounted at provided outlets as per drawing.

1.7.12 Cabling

Cabling shall be provided to connect all relevant equipment together. The cabling must comply with the requirements of the standard specification for public address systems.

As the system shall be utilised for voice evacuation, all wiring utilised shall be of the fire retardant type as contemplated in the standard specification. FR20 cable shall not be accepted.

1.7.13 Sound pressure levels

On completion of the installation sound pressure level test shall be performed in the presence of the engineer in all the areas covered by the installation.

The sound pressure levels shall be tested for both normal and emergency conditions.

1.8 Access Control system

1.8.1 Equipment specification summary

This specification describes the Project requirements for the Access Control System.

The Access Control System must be a fully functional system comprising one or more of the following items as specified herein:

- Stand-alone access control measures
- Locking devices
- Control barriers
- Alarm devices
- Software
- Software configuration

1.8.2 Compliance with regulations and standards

The supply and installation of the access control system shall conform to the standard specification for access control systems.

Applicable Regulations and Standards include, but are not necessarily limited to:

- The Occupational Health and Safety Act (Act No 85 of 1993).
- Local Authority By-laws.
- Local Fire Office Regulations.
- ICASA Regulations.
- The Standard Regulations of the Government Department or other statutory body where applicable.
- The SANS 2220 series of specifications, as further qualified and expanded in this specification, are applicable to this contract.

1.8.3 Electrical supply

The electrical supply for the access control equipment shall be provided by the electrical contractor. Supply points for door controllers shall be by means of a dedicated socket outlet mounted above the ceiling in the ceiling void.

The power supply to the access control equipment shall be taken from the Standby System.

The contractor shall allow for the supply and installation of suitable battery backup in the controllers etc. to ensure seamless operation of the system for 48 Hours, in the event of a complete power failure.

1.8.4 Plug-in terminal box

For easy maintenance the wiring of the relevant equipment specified must be connected by way of plug-in terminal blocks, as specified.

1.8.5 Locking, monitoring, control and alarm devices

Locking and controlling devices comprise the ironmongery necessary for the functioning of the barrier, mostly a door or set of doors.

The doors in the building shall be supplied by the builder. Locking and emergency escape devices required for the operation of the doors shall be provided by the contractor. Door closers shall be provided by the builder under the building contract.

Notwithstanding the above, Shear Locks in the aluminium doors shall be provided by the door manufacturer.

1.8.6 Magnetic locks

Locking of fire and wooden doors shall be done by means of magnetic locks mounted on the door frames above the doors and on walls and floors where so required.

The contractor shall allow its price for the supply and installation of standard magnetic locks to the doors indicated on the relevant drawings. Contractors shall note that the magnetic locks will be fitted to the following type of doors:

- single and double doors – wooden doors with steel frames
- single and double fire doors with fire rated steel frames
- single and double wooden doors with wooden frames

No special mounting brackets shall be required for the magnetic locks.

1.8.7 Shear locks

Shear Locks shall be provided in all Aluminium Swing Doors and shall be provided by the door manufacturer. The contractor shall be responsible to connect the access control system onto these locks.

1.8.8 Call points/ emergency exit devices

A break glass unit shall be installed on the secure side of each of the access controlled doors to release the locks in the event of a fire. The colour of the break glass units shall be other than red.

1.8.9 Door position switches

Door position switches are required for all doors. For aluminium doors the position switches may be of the surface mounted type.

For wooden doors the position switches shall be recessed into the door and doorframe.

1.8.10 Barriers

All barriers must conform to SABS 2220, Part 2.7.

1.8.11 Unlocking devices

Key pad unlocking devices shall be provided throughout the facility.

The readers shall be installed in the positions indicated on the drawings. The contractor shall provide detailed information on the proposed units.

1.8.12 Field processing units

FPU must each serve as network/communication device for a minimum of two unlocking devices.

Each FPU must have two relay outputs for interfacing with other systems.

FPU must have two outputs suitable to drive sounders specified elsewhere.

PU must be programmable to do sally port (access booth) logic

FPU must have input circuits for

- Two door position switches
- Two locking device status signals
- Two push button switch signals (free exit)

1.8.13 Central controller

The access control functionality will be integrated into the existing system at the hospital.

1.8.14 Central controller

At each Key Pad Access Control Device there must also be an Intercom System linked to the relevant Duty Station.

1.8.15 Central controller

Seclusion rooms to have “Tamper Proof Intercom” linked to the relevant Duty Station.

Note: Hospital will have own “Patient Alarm” system.

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public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

Standard Specification For HVAC Specification

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SPECIFICATION FOR AIR CONDITIONING AND VENTILATION INSTALLATIONS

1 GENERAL

1.1 Scope of Work

The site for this contract is the refurbishment of the existing single storey JSB Garrison Finance office in Thaba Tshwane in Pretoria.

The site conditions are as follows:

Electricity supply: 400/220 Volts AC, 50 Hz

Altitude approximately: 1400m above sea level

Summer ambient condition: 32 °C db and 20 °C wb

Indoor ambient condition: 22 °C db and 16 °C wb

This contract is for the following: the supply, delivery, installation, commissioning and one year guarantee of the following equipment:

- a) Dismantle, remove and hand over of existing
- b) Split type inverter air conditioning units with all indoor units, external units, pipe work, wiring and controls;
- c) Toilet and general air extraction systems complete with fans, sound attenuators, electrical and controls.
- d) Fresh air supply system complete with fan, sound attenuators, electrical and controls.
- e) Ducting system for fresh air supply, extraction and air conditioning units complete with supply air diffusers, extraction valves, extraction grilles, flexible ducting and insulation where indicated on the drawings;
- f) Ceiling and wall mounted exhaust air fans;

This specification shall be read as the minimum requirements to which the air conditioning installations shall be supplied, delivered, installed, tested and commissioned to form a complete working system without any further material, apparatus or labour required to make it so. All work, labour, material and apparatus required for the completion of this subcontract, whether specified, indicated on drawings or obviously required to be included in the subcontract, shall be allowed for and shall form part of this subcontract.

Note:

Should the scope of work be changed as a result of omitting items from this contract for whatever reason, the Subcontractor shall not be entitled to claim for loss of profit or any other loss due to such omissions. Omissions from this contract may be done with the discretion of the Client or the Engineer.

The contingency amount in the schedule of quantities is for unforeseen expenses only and shall only be used with the discretion of the Client or the Engineer. All items in the schedule of quantities shall be as per specifications and drawings.

1.2 Statutory and Regulatory requirements

The installation shall be manufactured, erected, built, constructed, commissioned, tested and maintained in compliance with the following regulations where applicable:

- a) Occupational Health and Safety Act, Act 85 of 1993.
- b) SABS 1238 - Air conditioning ductwork

- c) National Building Regulations. SABS Code 0400
- d) The Standard Regulations for the Wiring of Premises compiled by the South African Institute of Electrical Engineers.
- e) The by-laws and regulations of the local authority for the particular area in which the building site falls.
- f) Relevant codes of practise as compiled by the SABS.
- g) Local fire regulations
- h) 0142 Code of practice for the wiring of premises.

All losses, costs or expenditures which may arise as a result of negligence to comply with any regulation applicable to this service as specified above shall be for the account of the Subcontractor.

Any variation which may result due to a contradiction between any statutory or regulatory requirement, shall only be carried out with the written permission of the Engineer.

Department of Public Works Specifications

The following standard specifications of the Department of Public Works, and the standards referred to in these standard specifications shall apply:

Standard Specification for Air Conditioning and Ventilation Installations, reference STS1 1998 as revised.

1.3 Manufacturer's Ratings

Equipment as specified in this specification shall operate well within the manufacturer's ratings. Any tender offering equipment for use beyond these limits will not be considered. Tenderers shall submit manufacturer's ratings of all equipment offered for the full range of capacities, speeds, power requirements, pressure ranges, etc. provided this information is not already in the possession of the Engineer.

1.4 Protection of Works

The Subcontractor shall take all precautions necessary for the protection of life, equipment and property on or about or in connection with the Works during installation. Equipment damaged in transit or during installation will not be acceptable and shall be replaced.

Damage caused by the Subcontractor, or his servants, agents or workmen, to the building, structure, erection or any other service, shall be rectified to the satisfaction of the Engineer, by and at the expense of the Subcontractor.

Damage caused to the building or any building element by water leaks shall be rectified to the satisfaction of the Engineer by and at the expense of the Subcontractor.

1.5 Visit to Site

There will not be a compulsory pre-tender site visit. However, Tenderers have to acquaint themselves with the nature and extent of the work involved to make allowance for items obviously intended and necessary for the proper completion of the work although not specifically specified.

Claims on the grounds of lack of knowledge will not be considered.

1.6 Time for Completion

The Subcontract will be required to maintain progress with the Main contractor to the satisfaction of the Engineer and to complete the installation concurrently with the building contract.

The period for completing the building may be extended and the concurrency of this contract shall include any or all such extensions.

1.7 Guarantee

The Subcontractor shall guarantee the installation for 12 months during which the Subcontractor shall be responsible for all maintenance and servicing. During this period the Subcontractor shall make good any defects due to inferior materials and workmanship.

1.8 Erection

The installation shall be erected and installed by specialists. Only specialist contractors who can prove that they have successfully completed similar installations will be considered.

Complete erection drawings and instructions shall be made available to the Engineer for approval before the work is commenced.

The commissioning of the plant and systems is the responsibility of the Subcontractor.

Within 10 days after the award of the subcontract the Subcontractor shall furnish an erection programme showing how he proposes to complete the subcontract within the period whilst working in close collaboration with the Main Contractor, and clearly stipulating priority requirements.

1.9 Materials and Workmanship

All materials shall be new, undamaged, free of rust and other defect and shall be of the best quality. Where applicable, all materials shall conform in respect of quality, manufacture, tests and performance with the relevant SABS or BS specifications. The Subcontractor shall upon the request of the Engineer submit documentary proof that materials are of the quality specified. Where the quality of materials is not to the satisfaction of the Engineer, the Subcontractor shall replace all such materials at his own expense. Rejected materials shall be removed from site by the Subcontractor. Should the quality of materials be ambiguous, the Subcontractor shall submit at his own cost samples of such materials to an acceptable Inspection Bureau for testing and reports.

The Subcontractor shall employ only competent artisans for the erection of the installation.

The installation shall be erected in a workmanlike manner in accordance with the best accepted modern practice, to the satisfaction of the Engineer, and shall include all materials and equipment required for the successful operation of the plant specified.

The Subcontractor shall be responsible for the correct and complete erection of the installation, materials and equipment. Work which are not in accordance with the relevant specifications or are defective in any way shall be subject to rejection by the Engineer. Such inspection, examination or testing on the part of the Engineer, or failure to inspect, examine or test, shall not release the Subcontractor from any obligation under the subcontract.

1.10 Drawings

Drawings shall be in accordance with the SABS 0111, Code of Practice for Engineering Drawings.

Engineer's drawings issued for each service are not manufacturing drawings and the dimensions given are only sufficient for tendering purposes or to enable the Subcontractor to complete his working drawings.

Two copies of the following drawings shall be submitted by the Subcontractor for approval.

a) Builder's Work Drawings

These are structural or other drawings on which all building requirements as indicated on the Engineer's drawings are verified, changes and/or additional requirements to be made to the structure to meet the dimensional requirements of the equipment and materials to be installed by him. Builder's Work drawings shall also include positions, sizes and masses of major pieces of equipment, positions, sizes and masses of bases for the equipment, waterproofing details, grouting, required water and drain connections as well as all other building requirements necessary for the successful installation and operation of the plant.

b) Mechanical Drawings

These are workshop and equipment layout drawings required for the manufacture and erection of the Installation.

The Subcontractor shall take site measurements before drawings are issued for construction or equipment is manufactured, to ensure that the equipment will fit into the space available. Any changes required to manufactured items to allow the proper installation thereof shall be for the account of the Subcontractor. Positions and sizes of louvered openings, openings through reinforced concrete beams and slabs, etc. as indicated on the Engineer's drawings shall be adhered to as far as possible. All cable and pipe routes shall be shown in detail on the mechanical drawings. Amendments will only be considered if absolutely unavoidable.

c) Electrical Drawings such as:

General arrangement drawings of the switchboard

Circuit diagrams

Interconnection diagrams

Cable and equipment schedules

Drawings, except builder's work drawings, shall be submitted timeously for approval. Builder's work drawings shall be submitted within three weeks from the date of acceptance of his tender.

The Subcontractor is advised to submit two copies each of his mechanical and electrical drawings for comment by the Engineer after which his original drawing shall be updated and submitted for signature to ensure that all drawings issued for construction are certified as approved.

Any work done by the Subcontractor without an approved drawing shall be at the Subcontractor's own risk and any changes required to conform with the contract documents or to co-ordinate his work with other trades shall be for the account of the Subcontractor.

Approval of drawings by the Engineer shall not relieve the Subcontractor of his responsibility to carry out the work in terms of the subcontract documents.

The mechanical and electrical drawings shall be updated during the contract period and shall be included in the O & M Manual at the end of the subcontract period as "As Build Drawings".

1.11 Operating and Maintenance Manual

The Subcontractor shall prepare and supply Manuals for the successful operation and maintenance of the Installation. A draft of the manual shall be submitted after commissioning for approval. The draft shall then be corrected, if required, and three sets of the manual shall be submitted before first acceptance of the plant will be taken.

SECTION 1: GENERAL

- 1.1 Contact details of all parties involved.
- 1.2 Detail plant description.
- 1.3 Operation of plant

SECTION 2: OPERATING INSTRUCTIONS

- 2.1 Pre-start checklist.
- 2.2 Starting and stopping instructions.
- 2.3 Plant running checklist.
- 2.4 Safety precautions to be taken.

2.5 Operator's duties.

SECTION 3: MECHANICAL EQUIPMENT

- 3.1 Design capacities of all equipment including selection parameters, selection curves, capacity tables, etc.
- 3.2 Commissioning data and settings
- 3.3 Manufacturer's brochures and pamphlets.

SECTION 4: MAINTENANCE INSTRUCTIONS

- 4.1 Scheduled maintenance particulars, with maintenance schedules.
- 4.2 Troubleshooting guide.

SECTION 5: DRAWINGS

- 5.1 Paper prints or reduced sizes prints of all Subcontractor's drawings (mechanical and electrical) updated to "As Build" drawings.

The operation and maintenance instructions specified above shall preferably be obtained from the equipment manufacturer and where no such manual exist, they shall be compiled by the Subcontractor to the best of his ability.

The Subcontract will be considered incomplete until all tests have been conducted to the satisfaction of the Engineer and all drawings and manuals have been handed over to him.

1.12 Maintenance and Servicing

- 1) The Subcontractor shall be responsible for all maintenance and servicing of the Installation for the full 12-month maintenance and guarantee period. During this period, the Subcontractor shall make good any defects due to inferior materials and workmanship and maintain all plant and equipment in perfect operating condition.
- 2) The Subcontractor shall be entirely responsible for carrying out regular inspections and for full servicing of all components of the Installation in accordance with the Manufacturer's instructions. For this purpose, the Subcontractor shall prepare a detailed inspection and service report in the form of a check-list showing all functions to be carried out at each inspection. Copies of these service reports shall be regularly submitted to the Engineer after each service.
- 3) Filter media will be supplied by the client if necessary for replacement.

1.13 Cleaning of Equipment and Site

The Subcontractor shall be responsible for cleaning all portions of the plant to the satisfaction of the Engineer.

1.14 Inspection and Testing

The Engineer or the Client shall have the right to inspect, examine or test all equipment, materials, workmanship, etc. on site or at the factory or workshop. Such inspections, examinations or tests shall not release the Subcontractor from any obligation under the subcontract.

It is the Subcontractor's responsibility to inform the Engineer of the date and place at which any portion of the installation will be ready for inspection or testing.

2 DETAIL TECHNICAL REQUIREMENTS

The following are the detailed requirements of this contract. These requirements shall in all instances be read in conjunction with the drawings.

Noise Levels

Maximum noise levels caused by the operation of any mechanical equipment shall not exceed 35 NC in the building.

The specified noise level shall be that read at a distance of not more than 2 meters from any air outlet, return air grille or opening.

2.1 Split type air conditioning units

Supply and install the required amount of ceiling cassettes, hide-away and midwall split units in the positions as shown on the drawings.

The units shall consist of an air-handling unit with a separate, matching, condensing unit. The units shall be of the same make.

The air-handling units shall be complete with multivane centrifugal air-circulation fan, cooling coil, condensate tray, air discharge and return air grilles and controls and washable filters. The filters shall be easily accessible through a hinged return air grille mounted in a return air plenum box.

The units shall be provided with remote controllers for adjustment of the fan speed and room temperature.

Condensing units shall be equipped with sealed compressor, an air-cooled condenser and condenser fan all mounted on a heavy gauge steel base. Provision shall be made to prevent liquid refrigerant feed back to the compressor. The unit shall be suitable for the installation out of doors. Condenser coils shall be protected against vandalism and hail damage.

The midwall split unit shall be provided with a condensate pump capable of a 4-meter head.

The units shall be of the inverter heat pump type.

The units shall be supplied in durable finish.

The remote condensing units shall be mounted in the air conditioning plant room.

Wired remote controllers shall be mounted against the wall for each unit

Electrical Work

The following work shall be provided by others:

Provision of suitable isolators within one meter from each fan/condensing unit

2.2 Air Duct Systems

Ductwork

Low velocity low pressure, medium and high pressure ductwork shall be manufactured from galvanized sheet metal and shall be round in cross-section except where otherwise specified. The ducting shall be smooth and not of the spiral type.

All internal air conditioning ducting shall be externally insulated with FRK or approved equal. The insulation shall be fire retardant. Insulation must be completely sealed with a material which shall prevent insulation material to contaminate the building.

All operating air conditioning ducting in the plant room shall be externally insulated with minimum 25mm thick Thermasheet insulation from Thermaflex with a PVC protective coat, or approved equal. The insulation shall be fire retardant. Insulation must be completely sealed with a material which shall prevent insulation material to contaminate the building.

All external air conditioning ducting shall be externally insulated with 25mm thick mineral wool and covered with galvanised sheet metal sheets which shall be waterproof. The insulation shall be fire retardant. Insulation must be completely sealed with a material which shall prevent insulation material to contaminate the building.

Ductwork shall be left unpainted.

Ductwork shall be suspended from the roof trusses and concrete slab by means of purpose made duct hangers to suit the weight of the duct. The spacing for the supports shall be in accordance with the manufacturers specifications and the SABS requirements.

Ductwork shall comply with requirements of SABS 1238 - Air conditioning ductwork except where modified as follows:

Clause No.	Modification
1.1	The specification shall be applicable to both air conditioning and ventilation ductwork.
2.2	The sizes of ducts and fittings shall be the dimensions of the sheet metal.
3.1	The material of galvanized sheet metal ducting shall be to ISCOR Specification SPE 140: Galvanized Slit Strip/Sheets.
3.5	The material for flexible joints shall, in addition to the requirements of clauses 3.5.1 and 3.5.2, be of neoprene impregnated fabric similar or equal to VENTGLAS. Ordinary canvas type flexible joints will not be allowed.
4.4.1	Access openings required for items (b) and (c) shall not be less than 500 x 500 mm. Access openings required for item (a) shall be large enough to allow for the removal of equipment. Access panels in insulated ductwork shall be of the double walled construction in accordance with 4.4.9.
4.4.2	Sizes of access panels shall be as specified in 4.4.1 above. Hinged panels shall be equipped with at least two hinges, two latches and one handle. Unhinged panels shall be provided with at least four latches and two handles.
4.6.1	Where sound attenuators are specified for axial flow fans, flexible joints shall be provided between the sound attenuator and ductwork. Sound attenuators shall be rigidly flanged to axial fans.
4.6.5(c)	Flexible joint material shall be fastened to high pressure ductwork in accordance with Fig. 2 or suitable flanged connections.
4.6.6	In addition, flexible joints exposed to the weather shall be protected by means of galvanized sheet metal covers.
4.7.1	An approved sealant shall be applied to longitudinal and transverse joints of low, medium and high pressure joints prior to the assembly of such joints.
5.1.2	Duct sizes shall be as indicated on the drawings issued with each service.
5.2	Table 3. Longitudinal seams for low pressure ductwork shall be in accordance with Fig. 6, 8 or 9 only for both steel and aluminium.
5.3(a)	The following conversion shall apply for the minimum sheet thickness specified. 0,6 mm nominal = 24 SWG (0,56) 0,8 mm nominal = 22 SWG (0,71) 1,0 mm nominal = 20 SWG (0,914) 1,2 mm nominal = 18 SWG (1,22) 1,6 mm nominal = 16 SWG

- (b) Transverse joints shall be formed by MEZ-flange as supplied by EUROPAIR or an approved equivalent. For duct sizes with the longest dimension more than 400 mm, transverse joints according to SABS 1238 may be installed.
- 5.3.2 Medium negative pressure systems shall have inward cross breaking.
- Fig 28, 29 & 30 Vanes in bends of which the throat radius exceeds 100mm, shall be selected using CHART 6 in CARRIER SYSTEMS DESIGN MANUAL Part 2.
- (5) The SMACNA Low Pressure and High Pressure Duct Construction Standards shall apply in such cases where SABS 1238 are silent regarding duct fittings and other low pressure or high pressure air handling equipment.
- (6) The installation of air conditioning and ventilation ducting shall be in accordance with SABS 0173 Code of Practice for the installation, testing and balancing of air conditioning ductwork.
- (7) Flexible ducts shall be of either the flexible metal type or spiral reinforced fabric type. The flexible metal type shall be of interlocked spiral construction of galvanized sheet steel or aluminium. The spiral reinforced fabric type shall consist of flame resistant, neoprene impregnated and coated glass fibre fabric spirally stitched in over-lapping plies over a galvanized spring steel wire helix. Short turns in ductwork shall be avoided.
- (8) Flexible ducts which convey conditioned and return air shall be insulated externally.
- (9) Hanger rods shall be hot dip galvanized and left unpainted.
- (10) All rectangular duct elbows shall have a throat radius not less than 100mm and not larger than 150mm with a minimum of 3 guide vanes installed.
- The radius of each of the three vanes shall be indicated on the subcontractor's shop drawings. On square ducts with the larger sectional dimension 200 mm or less guide vanes may be omitted altogether.

2.3 Sound Attenuators

The noise levels created by the mechanical equipment in occupied areas shall not exceed NC 40 in toilets and NC 35 in all other occupied areas.

Sound attenuators shall be provided in positions as shown on the drawing and where the system attenuation alone is inadequate. Special attention shall be given to noise regeneration due dampers etc. inside duct work.

Tenderers are advised to calculate sound levels on the system offered before tendering. Where it is not possible to meet the specified sound levels due to the noise generated by equipment offered by tenderers or due to inadequacies in the building structure, or the design of the plant, such deficiencies shall be stated in the tender together with the Tenderer's recommendations and cost implications.

Duct mounted Sound attenuators shall be of the proprietary manufactured type. Field fabricated sound attenuators for use in plenum chambers shall be acceptable to the Engineer.

Field fabricated sound attenuators shall be double walled with the inner wall consisting of galvanised perforated plate. The perforations shall be 10 mm holes at 25 mm centres or the manufacturer's nearest standard. Expanded metal will not be acceptable. The inner and outer wall shall be held together with stiffening webs at approximately 300 mm centres. The lining thickness shall be at least 75 mm.

The internal free area of field fabricated sound attenuators shall be not less than the cross-sectional area of the connecting duct work as indicated on the drawing.

The absorption material shall be moisture repellent, odour free, not flammable, shall not burn or support combustion and shall be abrasion proof up to air speeds of 20 m/s.

The Subcontractor shall submit noise estimating sheets for all systems as well as the insertion loss ratings of sound attenuators for approval before ordering. Failure to do so may result in additional costs to the Subcontractor if noise levels in any area should exceed the specified limits.

2.4 Axial flow fans

Supply and install the axial flow fans for the fresh air and extraction systems.

Axial flow fans shall be current catalogue products and the supplier/manufacturer shall provide comprehensive certified performance curves and detail selections for the expected operating conditions.

Proof shall be provided that the fan has been selected for a service life of 45 000 running hours under actual building service conditions.

Fans shall be both statically and dynamically balanced in the manufacturer's factory and shall be mounted on vibration isolating springs and shall be quiet in operation.

Critical speed of rotating components shall be at least twice the normal operating speed.

Fan impellers shall be backward curved blades; fan motors shall be external rotor type with sealed ball bearings.

Sufficient care shall be taken during transport, delivery, storage and installation on site, to ensure that fans are in "as new" condition at date of take-over.

Fan motors shall be built in thermal overload switches which break the current to the motor when blocked or if the motor due to one reason or another has reached too high a temperature.

Fans shall be supplied with start/stop overload control.

Fan capacities and pressure rating are indicated on the drawings.

2.5 Ceiling mounted exhaust fans

Supply and install the fans as shown on the tender drawing. The fans shall be similar or equal to the Xpelair Cx 10 type with the white appearance

2.6 Refrigerant tubing

All refrigerant piping shall be of seamless, dehydrated, deoxidized, sealed copper tubing. Joints up to and including 16 mm outside diameter may be flared or soldered. Larger sizes shall be soldered.

Fittings for flare joints shall be standard gorged brass flare type. Flare nuts shall be of the short frost proof type.

For soldered joints the standard wrought copper or gorged brass sweat fittings and 95% antimony solder shall be used. Silver brazing wire sold under the trade names "Silfos" and "Easyflo" is also acceptable.

All tubing shall be neat, straight, and plumb or horizontal, parallel to walls. Tubing shall be supported at intervals not exceeding 1,5 m. Protection against mechanical damage shall be provided where required.

Valves shall be supported independently of the tubing and shall be placed with the stems horizontal.

Sufficient unions, flanged valves or fittings shall be provided for disconnecting equipment, controls, etc.

Piping shall not be run in such a way as to impede removal of equipment such as compressor heads, etc.

All tubing shall be accessible for repairs and shall be run in such a manner as to provide sufficient flexibility to withstand vibration due to the compressor.

Where tubing passes through walls, ceilings, etc., neat metal sleeves shall be provided. These shall be plumb or horizontal as the case may be, and shall protrude not more than 5 mm beyond the wall or ceiling finish.

Suction and liquid lines shall be suitably insulated with "Armaflex" or other similar and approved preformed insulation. Where insulation is exposed to outdoor conditions, it shall be painted with a suitable PVA paint with colour as approved by the Architect.

Refrigerant piping and interconnecting cables shall be protected with suitable galvanized trunking over its entire length (indoors and outdoors).

Copper tubing and electrical cables, between air-handling and condensing units shall be installed in accordance with the supplier's recommendations. All visible piping and cables inside or on the outside of buildings shall be installed in adequately sized Unistrut or similar trunking.

The air handling unit shall be provided with a 12 mm NB copper or PVC drain pipe. The pipe shall terminate in the nearest drain or gully. Visible drain piping shall be surface mounted on **hospital** type saddles not more than 1500 mm apart. Drain piping shall be installed with an adequate fall in the flow direction and shall incorporate a properly designed U-trap to drain against the resistance of dirty filters and to prevent the ingress of unconditioned outside air. Copper drain piping shall be soldered. Suitable pipe cement shall be used on all PVC pipe joints.

Sight glasses with moisture indication shall be installed in the liquid line of each unit close to the evaporator unit concealed in trunking.

Refrigerant tubing on the roof shall be supported on cable racks. The cable racks shall be supported every 1500 mm on steel. The refrigerant tubing shall be covered with a galvanised sheet metal lid where exposed to external weather conditions.

2.7 Supply air diffusers

The supply air diffusers shall be of the swirl type similar or equal to type FD as supplied by Trox. The diffusers shall be of the square type and fit into a 600 x 600 mm ceiling T system. The diffusers shall be made of galvanized sheet steel, the surface treated with phosphate and finished with white stove-enamel.

The diffusers shall have a neck diameter and capacity as shown on the drawings.

2.8 Return air grilles

Return air grilles shall be wall mounted and ceiling mounted and shall be of the fixed blade type.

The wall mounted grilles for the operating theatres shall have hinged front panels with supports for filter media and OB dampers.

The grilles sizes and capacities are shown on the drawings.

2.9 Extraction grilles

Extraction grilles shall be of the DVK type as well as constant volume square diffusers with diameters and capacities as shown on the drawings.

2.10 Weather louvers

Weather louvers shall be installed in the fresh air and extraction systems and shall be natural aluminium anodized.

2.11 Electrical

All electrical work required to make this a fully operational air conditioning and ventilation system shall be done under this contract.

The supply and installation of the control board as well as connections to the fans, outdoor and indoor units, etc. form part of this contract.

All wiring shall be done in accordance with the requirements of THE NATIONAL Building Regulation. The switchboard shall also meet the requirements of the Electrical Engineer, and must be inspected by the Electrical Engineer or his duly appointed representative prior to the switchboard leaving the factory.

The standard of workmanship and equipment offered shall conform to the requirements laid down by the Electrical Engineer as specified in the General Technical Specification for Electrical Installations.

Three copies of the wiring diagram and switchboard layout must be submitted to the Engineer for approval before manufacture of the board is commenced.

On the indication station, four green lights and one red will indicate the status of the plant. Any faulty condition on the plant shall be shown on the red light. The green light shall indicate the following.:

- a) Fan on
- b) Cooling on
- c) Heating on

All the safety and interlocking devices normally to be found shall be fitted.