public works
& infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

TENDER No: KIM 09/2022

CLOSING DATE: 09 DECEMBER 2022

PROCUREMENT DOCUMENTS

VOLUME 3: CONTRACT

DEPARTMENT OF EMPLOYMENT AND LABOUR

TOTAL REFURBISHMENT
OF
EXISTING LABOUR OFFICES

AT

UPINGTON

NORTHERN CAPE PROVINCE

DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE
KIMBERLEY REGIONAL OFFICE
PRIVATE BAG X5002
KIMBERLEY
8300

PROJECT MANAGER:
SANDISO COSA

NOVEMBER 2022

public works
& infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

PROCUREMENT DOCUMENTS

DEPARTMENT OF EMPLOYMENT AND LABOUR
TOTAL REFURBISHMENT
OF
EXISTING LABOUR OFFICES
AT
UPINGTON
NORTHERN CAPE PROVINCE

QUANTITY SURVEYORS

QSPOWER QUANTITY SURVEYORS (PTY) LTD
14 Robbie Ross Road
Kimberley
8301

Contact Person: Hannelie Smuts
Tel: (053) 832 0900
E-mail: qspower@xsinet.co.za

ARCHITECT

KMS ARCHITECTS (PTY) LTD
Kruger Office Park
100 Marshall Street
Polokwane
0669
Contact Person: Zandi Makhubele
TEL: (015) 590 0995
E-mail: z.makhubele@kmsarch.co.za

ELECTRICAL ENGINEERS

Optimum Engineering Consultants
The Oval Office Park
Centurion Building
1 Meadowbrook Lane
Bryanston
2191
Contact Person: Moses Maliba
Tel: (010) 800 1534
E-mail: mosesm@etlconsulting.co.za

DEPARTMENT OF PUBLIC WORKS

KIMBERLEY REGIONAL OFFICE
Private Bag X5002
Kimberley
8301
Contact Person: Sandiso Cosa
Tel: 079 516 9085
E-mail: Sandiso.Cosa@dpw.gov.za

NOVEMBER 2022

TABLE OF CONTENTS

PART C1: AGREEMENT AND CONTRACT DATA

C1.2 CONTRACT DATA

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

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

Project title:	UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE

Tender / Quotation no:	KIM 09/2022	**WCS no:**	055532	**Reference no**:	19/2/4/22/2327/192

	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. **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)).** 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. 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.
	CONTRACT VARIABLES **THE SCHEDULE** 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.** **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].

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

Tender / Quotation no: KIM 09/2022

A 2.0 Site [1.1]

Erf / stand number	
Site address	
Township / Suburb	
City / Town	Upington
Province	Northern Cape
Local authority	
GPS Coordinates	

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	sandiso.coza@dpw.gov.za	Telephone	+27 79 516 9085
Postal address	Private Bag X 5002 Kimberley 8300		
Physical address	21-23 Market Square Kimberley 8301		

A 3.2 Employer's representative:

Name	Sandiso Cosa	Telephone number	
E-mail	sandiso.cosa@dpw.gov.za	Mobile number	0795169085
Postal address	Private Bag X 5002 Kimberley 8300		
Physical address	21-23 Market Square Kimberley 8301		

Tender / Quotation no: KIM 09/2022

A 4.0	**Principal Agent** [1.1; 6.2]	**Discipline**	Principal Agent

Name	KMS ARCHITECTS (PTY) LTD		
Legal entity of above	KMS ARCHITECTS (PTY) LTD	Contact person	Patrick Kagori
Practice number		Telephone number	015 590 0995
Country	South Africa	Mobile number	
E-mail	p.kagori@kmsarch.co.za		
Postal address	Kruger Office Park 100 Marshall Street Polokwane 0669		
Physical address	Kruger Office Park 100 Marshall Street Polokwane		

A 5.0	**Agent** [1.1; 6.2]	**Discipline**	Architect

Name	KMS ARCHITECTS (PTY) LTD		
Legal entity of above	KMS ARCHITECTS (PTY) LTD	Contact person	Patrick Kagori
Practice number		Telephone number	015 590 0995
Country	South Africa	Mobile number	
E-mail	p.kagori@kmsarch.co.za		
Postal address	Kruger Office Park 100 Marshall Street Polokwane 0669		
Physical address	insert physical address Polokwane insert town insert postal code		

A 6.0	**Agent** [1.1; 6.2]	**Discipline**	Quantity Surveyors

Name	QSPOWER QUANTITY SURVEYRS (PTY) LTD		
Legal entity of above	QSPOWER QUANTITY	Contact person	H Smuts
Practice number		Telephone number	053 832 0900
Country	South Africa	Mobile number	0829396403
E-mail	qspower@xsinet.co.za		
Postal address	14 Robbie Ross Road Royldene Kimberley 8301		
Physical address	14 Robbie Ross Road Royldene Kimberley 8301		

Tender / Quotation no: KIM 09/2022

A 7.0	**Agent** [1.1; 6.2]	**Discipli**ne	Electrical Engineer

Name	Optimum Enginering Consultants		
Legal entity of above	Optimum Enginering Consultants	Contact person	Moses Maliba
Practice number		Telephone number	(010) 800 1534
Country	South Africa	Mobile number	
E-mail	mosesm@etlconsulting.co.za		
Postal address	The Oval Office Park Centurion Building 1 Meadowbrook Lanen Bryanston 2191		
Physical address	The Oval Office Park Centurion Building 1 Meadowbrook Lanen Bryanston 2191		

A 8.0	**Agent** [1.1; 6.2]	**Discipli**ne	

Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address	insert postal address insert suburb insert town insert postal code		
Physical address	insert physical address insert suburb insert town insert postal code		

A 9.0	**Agent** [1.1; 6.2]	**Discipli**ne	

Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address	insert postal address insert suburb insert town insert postal code		
Physical address	insert physical address insert suburb insert town insert postal code		

Tender / Quotation no: KIM 09/2022

A 10.0	**Agent** [1.1; 6.2]	**Discipli**ne	

Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address	insert postal address insert suburb insert town insert postal code		
Physical address	insert physical address insert suburb insert town insert postal code		

A 11.0	**Agent** [1.1; 6.2]	**Discipli**ne	

Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address	insert postal address insert suburb insert town insert postal code		
Physical address	insert physical address insert suburb insert town insert postal code		

A 12.0	**Agent** [1.1; 6.2]	**Discipli**ne	

Name			
Legal entity of above		Contact person	
Practice number		Telephone number	
Country		Mobile number	
E-mail			
Postal address	insert postal address insert suburb insert town insert postal code		
Physical address	insert physical address insert suburb insert town insert postal code		

Tender / Quotation no: KIM 09/2022

B CONTRACT INFORMATION

B 1.0 Definitions [1.1]

Bills of quantities: System/Method of measurement	Standard system of measurement of building works 7th edition

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

B 3.0 Offer and acceptance [3.0]

Currency applicable to this agreement [3.2]	South African Rand

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

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	
Drawings as per drawing register issued with the tender	
Specifications issued with the tender	
Schedules issued with the tender	
Bills of Quantities issued with the tender	
Addenda as issued during tender stage, if applicable	As issued

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]	

Tender / Quotation no: KIM 09/2022

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%	Select
Or	Works with practical completion in sections [10.2] With a deductible not exceeding 5% of each and every claim	Contract sum plus 10%	Select
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%	Select
	Direct contractors [10.1.1; 10.2] where applicable, to be included in the contract works insurance	RPQS to determine value	Select
	Free issue [10.1.1; 10.2] where applicable, to be included in the contract works insurance	RPQS to determine value	Select
	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	Select
Other insurances [10.1.5]			
Hi Risk Insurance Refer B18.0 [10.1.5.1]		R PQS to determine value	Select
Other insurances: If applicable, description 1:		R PQS to determine value	Select
Other insurances; If applicable, description 2:		R PQS to determine value	Select

Tender / Quotation no: KIM 09/2022

B 7.0 Obligations of the employer [12.1]

Existing premises will be in use and occupied [12.1.2]	Select
If applicable, description:	
Restriction of working hours [12.1.2]	Select
If applicable, description:	
Natural features and known services to be preserved by the contractor [12.1.3]	Select
If applicable, description:	
Restrictions to the site or areas that the contractor may not occupy [12.1.4]	Select
If applicable, description:	
Supply of free issue of material and goods [12.1.10]	Select
If applicable, description:	

B 8.0 Appointment of Nominated Subcontractors [14.0]

Select	If applicable, description of specialisation

Specialisation 1	
Specialisation 2	
Specialisation 3	
Specialisation 4	
Specialisation 5	

B 9.0 Appointment of Selected Subcontractors [15.0]

Select	If applicable, description of specialisation

Specialisation 1	
Specialisation 2	
Specialisation 3	
Specialisation 4	
Specialisation 5	

Tender / Quotation no: KIM 09/2022

B 10.0 Appointment of Direct Contractors [16.0]

Select	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]

Select	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 time 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	

Tender / Quotation no: KIM 09/2022

Period to obtain Construction Permit from Department of Labour upon approval of the Health & Safety Plan by the appointed Health & Safety Agent	
Total construction period for the Works as a whole up to and including Practical Completion, as indicated below [24.1]	12
Period to achieve Works Completion Refer B18.0 [19.8]	
Defect liability period up to and including Final Completion	Select
Total Contract period [B18: 1.2]	13
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

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]	insert contract period as per B12.1 or N/A if Works in portions are applicable
Period for inspection in **working days** by the principal agent [19.3]	
Penalty amount per calendar day for **late Practical Completion**, excluding VAT. [24.1]	R 2 850.00
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
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

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]					Select	
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: KIM 09/2022

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]	insert contract period as per B12.1 or N/A if Works as a whole is applicable
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
13.3	All guarantees
13.4	Training on electrical, security and mechanical installations if contractually required
13.5	Maintenance / operating manuals
13.6	CPG and cidb BUILD pprogramme achievement certificates submitted with substatiating documentation
13.7	
13.8	
13.9	
13.10	

Tender / Quotation no: KIM 09/2022

B 14.0 Defects liability period [21.0]

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

Select	If applicable, description of applicable elements

14.1	Emergency generator/s
14.2	Air conditioning system and plant
14.3	Security system/s (e.g. Access control, Intruder alarm, etc.)
14.4	Electrical equipment (e.g. Electric operated doors, Electric motors, etc.)
14.5	Lifts
14.6	Mechanical equipment (e.g. Fire detection, Fire suppression system, Kitchen equipment, etc.)
14.7	Civil works
14.8	Landscaping including automated systems (irrigation)
14.9	
14.10	

B 15.0 Payment [25.0]

Date of month for issue of regular payment certificates Refer B18.0 [25.2]	
Contract price adjustment / Cost fluctuations Refer [25.3.4; 26.9.5]	Select
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: KIM 09/2022

B 17.0 JBCC® General Preliminaries - selections

Provisional bills of quantities [P2.2]		Select
Availability of construction information [P2.3]		Select
Previous work - dimensional accuracy - details of previous contract(s) [P3.1]		Select
Previous work - defects - details of previous contract(s) [P3.2]		Select
Inspection of adjoining properties - details [P3.3]		Select
Handover of site in stages - specific requirements [P4.1]		Select
Enclosure of the works - specific requirements [P4.2]		Select
Geotechnical and other investigations - specific requirements [P4.3]		Select
Existing premises occupied - details [P4.5]		Select
Services - known - specific requirements [P4.6]		Select
Water [P8.1]	By contractor	Select
	By employer	Select
	By employer – metered	Select
Electricity [P8.2]	By contractor	Select
	By employer	Select
	By employer – metered	Select
Ablution and welfare facilities [P8.3]	By contractor	Select
	By employer	Select
Communication facilities - specific requirements [P8.4]		Select
Protection of the works - specific requirements [P11.1]		Select
Protection / isolation of existing works and works occupied in sections - specific requirements [P11.2]		Select
Disturbance - specific requirements [P11.5]		Select
Environmental disturbance - specific requirements [P11.6]		Select

Tender / Quotation no: KIM 09/2022

B 18.0 SPECIFIC CHANGES MADE TO JBCC® DOCUMENTATION

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

1.2	**Definitions** **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.** **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. **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. **CONSTRUCTION PERIOD:** The period commencing on the date of possession of the **site** by the **contractor** and ending on the date of **practical completion.** **CONTRACT PERIOD:** The period commencing on the date of the letter of acceptance and ending on the date of final completion. **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. **DEFAULT INTEREST**: No clause. **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]. **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. **LETTER OF ACCEPTANCE**: The letter of formal acceptance of the Contractor's or Service Provider's Tender / Bid, issued and signed by the Employer. **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. **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.** **TARGETED SUBCONTRACTORS:** Subcontractors that must be appointed to a total of 30% or more of the contract sum, by the contractor, projects with a contract sum of the amount determined by the Minister in terms of the latest Preferential Procurement regulations, as may be amended from time to time.

Tender / Quotation no: KIM 09/2022

CONTRACT SPECIFIC DATA	
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".

Tender / Quotation no: KIM 09/2022

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.

Tender / Quotation no: KIM 09/2022

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 *mutatis mutandis* 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.

Tender / Quotation no: KIM 09/2022

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 *mutatis mutandis*.
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 *mutatis mutandis*.
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.

Tender / Quotation no: KIM 09/2022

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 *mutatis mutandis* 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 *mutatis mutandis*.
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 *mutatis mutandis* 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.

Tender / Quotation no: KIM 09/2022

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 *mutatis mutandis* 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).

Tender / Quotation no: KIM 09/2022

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

Tender / Quotation no: KIM 09/2022

19.8 Continued	(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) (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: (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 (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 (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. (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).
20.2.1.A	Add the following as: 20.2.1.A A certificate of Works Completion [19.8]
21.1	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).
21.6	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. And/or 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: (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 (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.
21.6.1.	Omit clause.

Tender / Quotation no: KIM 09/2022

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.

Tender / Quotation no: KIM 09/2022

25.3	Add the following to clause 25.3: 25.3.12 Monthly Local content report. 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). 25.3.14 Tax Invoice. 25.3.15 Labour intensive report. 25.3.16 Contract participation goal and cidb BUILD programme reports.
25.5	No Clause.
25.6	Replace clause 25.6 with the following: 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.
25.7.5	No clause.
25.10	Replace clause 25.10 with the following: 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.
25.12	Replace clauses 25.12 to 25.12.3 with the following: The value certified shall be subject to the following percentage adjustments: (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) 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: 25.12.2 Ninety-five per cent (95%) of such value in interim **payment certificates** issued up to the date of **practical completion.** 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.** 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. 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**.

Tender / Quotation no: KIM 09/2022

25.12 Continued	(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]) 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: 25.12.7 Ninety per cent (90%) of such value in interim **payment certificates** issued up to the date of **practical completion.** 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.** 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. 25.12.10 One hundred per cent (100%) of such value in the final **payment certificate** in terms of 26 except were 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.**
26.1	Refer to clause 6.7 [CD].
26.4.3	Omit clause.
26.7	Refer to clause 6.7 [CD].
26.10	Replace 26.10 with the following: 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.**
26.12	Refer to clause 6.7 [CD].
27.1. 2	Replace 27.1.2 with the following: Interest due to late payment only.
27.1.4	Replace 27.1.4 with the following: Interest due to late payment only.
27.1.5	No clause.
27.5	Add the following as clause 27.5: 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.

Tender / Quotation no: KIM 09/2022

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 sequestrated, 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.

Tender / Quotation no: KIM 09/2022

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: KIM 09/2022

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 30% mandatory Subcontracting to SMMEs in accordance with the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017 as published in the Government Gazette Notice No. 40553 of 20 January 2017 – Condition of Tender. (Applicable to all projects above R30 Mil for all class of works categories)	***Select***
(b)	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. (Applicable to projects which require 7GB or 7CE cidb grading, i.e. R20 000 001 and above with minimum 6 month construction period)	***Select***
(c)	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. (Applicable to projects which require 7GB or 7CE cidb grading, i.e. R20 000 001 and above with minimum 6 month construction period)	***Select***
(d)	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. (Applicable to projects which require Grade 7 to 9 cidb grading, i.e. R20 000 001 and above with minimum 12 month construction period)	***Select***
(e)	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. (Applicable to projects which require 7GB or 7CE cidb grading, i.e. R20 000 001 and above with minimum 6 month construction period)	***Select***
(f)	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. 43495 of 3 July 2020, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. (Applicable to projects which require cidb Grade 7 and above for all class of works categories, i.e. R20 000 001 and above with minimum 12 month construction period)	***Select***
(g)	DPWI National Youth Service training and development programme (NYS) – Condition of Contract. (Applicable to projects with a minimum contract value R2 Mil and minimum 12 month construction period.	***Select***

Tender / Quotation no: KIM 09/2022

(h)	Labour Intensive Works – Condition of Contract. (Applicable to all CE projects and all GB projects ≥ R30 million)	***Select***
(i)		***Select***
(j)		***Select***

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.

Tender / Quotation no: KIM 09/2022

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

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.**

Tender / Quotation no: KIM 09/2022

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

Adjustment methods

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

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

Failure to provide particulars within the period stated

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

Lump sum contract

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

C1.3 FORM OF GUARANTEE

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

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

The Project Manager: Sandiso Cosa
Private Bag X5002
Kimberley
8300

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: KIM 09/2022, for the UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE (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 aforegoing, 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

The Project Manager: Sandiso Cosa
Private Bag ***X5002***
Kimberley
8300

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: ***KIM 09/2022***, for the ***UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE*** (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: ***insert tender number***

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 aforegoing, 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: ***insert tender number***

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:	***UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE***				
Tender / Quotation no:	*KIM 09/2022*	**WCS no:**	*055532*	**Reference no:**	*19/2/4/2/2/2327/192*

C2.1 Pricing Assumptions

C2.1.1 BILLS OF QUANTITIES / LUMP SUM DOCUMENT

The **bills of quantities** 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.

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.

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.

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 LOCAL MATERIAL UTILISATION REPORT (LOCAL CONTENT)

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 achieve in the performance of this contract the prescribed local content deliverables as listed in PA36 and annexures C thereto in the respective designated sectors as published by Department Trade Industry and Competition (DTIC). The Service Provider shall submit an accumulative monthly report 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 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 contractors 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. Allowance must be made for submitting monthly reports illustrating the value of local material utilisation report.

C2.1.11 CONTRACT PARTICIPATION GOALS AND CIDB BUILD PROGRAMME

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

Provision for pricing of compliance with the achieving the CPGs is made in the Contract Participation Goal Section of the Bills of Quantities and it is explicitly pointed out that all requirements in respect of the aforementioned are deemed to be priced thereunder and no additional claims in this regard shall be entertained

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.

C2.1.12 NATIONAL YOUTH SERVICE TRAINING AND DEVELOPMENT PROGRAMME

The National Youth Service Training and Development Programme is *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 C3.6.7. The contractor to price all elements of this section and allowance must be made for submitting monthly reports in the prescribed manner as per examples of reports bound in the specification document.

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.

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:	***UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE***		
Tender / Quotation no:	*KIM 09/2022*	**Reference no:**	*19/2/4/2/2/2327/192*

C3. Scope of Works

C3.1 EXTENT OF THE WORKS

Repairs and renovations to the existing labour offices building, carports and site works.

The summary of the work consists of the following:

1. Repair all cracks in walls and floors.
2. Paint the internal and external walls.
3. Replace the wall tiles in the ablutions and kitchens with porcelain tiles.
4. Replace the floor coverings in passages, offices, ablution areas and kitchens with porcelain tiles.
5. Replace the existing ceilings with new suspended ceilings, gypsum ceilings and fibre cement ceilings.
6. Replace all inside, outside doors and locks.
7. Replace the gates to the building.
8. Service, repair and paint the existing windows, including new glazing where needed.
9. Change external store into guard house.
10. Replace the roof tiles.
11. Replace the roof sheeting on buildings.
12. Replace the existing rainwater gutters and down pipes.
13. Replace the sanitary fittings and pipes.
14. Replace the water supply to the building complex.
15. Replace the fencing at the back of the site.
16. Replace the paving at the parking area at the backside of the building to new levels, including new stormwater, channels, stormwater pipes and stormwater catchpits. This is to resolve the stormwater problem.
17. Painting the existing carports roof, steel structure, sliding gates and service existing sliding gates.
18. Repair damaged sliding gates.
19. Replace the electricity installation of the building.
20. Replace the air-conditioners in the offices.
21. Install a new electrical generator.
22. Demolish the existing steps and ramp at the entrance of the building.
23. Building new steps and ramp at the entrance of the building.
24. Provide a covered waiting area at the front of the existing building.
25. Replace the water tanks with a steel water tank at the back of the building.

C3.2 ORDER OF THE WORKS

The order of the works will be determent with the client during the construction period.

C3.3 BUILDINGS OCCUPIED

The buildings will be occupied.

C3.4 ACCESS

Access is at the existing Department of Labour, Schroder Street, Upington, Northern Cape.

HIV/AIDS SPECIFICATION AND SCHEDULES

PW 1544

DEPARTMENT OF PUBLIC WORKS

HIV/AIDS

SPECIFICATION

OCTOBER 2004

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

3.1 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.

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

3.2.1 The nature of the disease;
3.2.2 How it is transmitted;
3.2.3 Safe sexual behaviour;
3.2.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
3.2.5 Attitudes towards other people with HIV/AIDS;
3.2.6 Rights of the Worker in the workplace;
3.2.7 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;
3.2.8 How the Service Provider will support the Awareness Champion;
3.2.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
3.2.10 How the workshops will be presented, including frequency and duration;
3.2.11 How the workshops will fit in with the construction programme;
3.2.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
3.2.13 How the video will be used;
3.2.14 How the Service Provider will elicit maximum participation from the Workers;
3.2.15 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 counseling.

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. The contractor should include the costs of posters and information booklets in his/her tender price.

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 hand over. 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

7.1 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.

7.2 The Awareness Champion shall be responsible for:

7.2.1 Liasing with the Service Provider on organising awareness workshops;
7.2.2 Filling condom dispensers and monitoring condom distribution;
7.2.3 Handing out information booklets;
7.2.4 Placing and maintaining posters.

8 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.

SCHEDULE A

HIV/AIDS PROGRAMME: SITE CHECKLIST

When did construction commence: _____

Name of Departmental Project Manager: _____

Please refer to HIV/AIDS Programme activities during the reporting period

Tick the block if Contractor satisfactorily complied with specifications																												
DATE	**PI**				**PI**				**PI**				**PI**				**PI**				**PI**				**PI**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Programme implemented within 14 days of site handover																												
Awareness champion on site																												
HIV/AIDS awareness service provider report																												
Male condom dispenser																												
Sufficient male condoms available																												
Male condom dispenser in a highly trafficked area																												
Female condom dispenser																												
Sufficient female condoms available																												
Female condom dispenser in a highly trafficked area																												
All four types of posters displayed																												
Posters in a good condition																												
Posters in a highly trafficked area																												
Posters displayed on local support services: clinic & VCT centre																												
Support service poster/s in highly trafficked area																												
Support service poster/s in a good condition																												

Please indicate the applicable number for the reporting period							
Workers on payroll (at PI)							
Sub-Contractors who will be on site for longer than 30 days (at PI)							
Workshop attendees							
Number of workshops held							
Scheduled workshops according to approved workshop plan							
Booklets distributed							
Male condoms distributed							
Female condoms distributed							

Representative/Agent

Date

Contractor

Date

Date of progress inspection: (ccyy/mm/dd)

Reporting period: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

Deviations from HIV/AIDS awareness programme plan:

Corrective actions:

Representative/Agent	Departmental Project Manager
Date	Date

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

Number of workshops conducted in reporting period: _____

Number of scheduled workshops according to approved workshop plan: _____

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

_____ _____

Service Provider

_____ _____

Date Date

HIV/AIDS AWARENESS PROGRAMME : WORKSHOP CONTENT ADDRESSED

Fill in the applicable information with regard to each workshop conducted																												
DATE	**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Content of workshop: (Mark the content included)																												
SLO1																												
SLO2																												
SLO3																												
SLO4																												
SLO5																												
SLO6																												
SLO7																												
HIV/AIDS in construction video																												
Indicate the duration of the workshop in hours																												
Total number of Workers																												
Indicate workshop venue																												

HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

Fill in your name and indicate attendance by ticking the appropriate date																															
DATE		**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**			
		D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
No	**NAMES**																												

SCHEDULE C

CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name: _____

Project Location: _____

Contract value of project: R_____

Department of Public Works Project Manager: _____

HIV/AIDS Programme duration: (ccyy/mm/dd) _____ to (ccyy/mm/dd) _____

AWARENESS MATERIAL

Describe location of posters displayed during the programme: _____

_____

Comments on posters: _____

Indicate total number of booklets distributed: _____

Comments on booklets: _____

_____

CONDOMS

Indicate total number of male condoms distributed: _____

Indicate total number of female condoms distributed: _____

Describe where male condom dispenser was placed: _____

Describe where female condom dispenser was placed: _____

HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted: _____

Indicate the duration of workshops: _____

Indicate the total number of Workers that participated in the HIV/AIDS workshops: _____

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry:

_____

Comments on HIV/AIDS workshops on site: _____

_____

GENERAL

Briefly describe programme activities and satisfaction with outcome: _____

_____

_____

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site:

_____

_____

_____

Please indicate if your company has a formal HIV/AIDS policy focussing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers:	Yes	No	Currently developing one

Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

Excessive weight loss	Coughing or chest pain	Vomiting
Reactive TB	Pain when swallowing	Meningitis
Hair loss	Persistent fever	Memory loss
Severe tiredness	Diarrhoea	Pneumonia

Number of HIV/AIDS-related deaths: _____

_____ _____

Contractor **Date**

_____ _____

Departmental Project Manager **Date**

OCCUPATIONAL HEALTH & SAFETY SPECIFICATION

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

OCCUPATIONAL HEALTH AND SAFETY

UPINGTON
EMPLOYMENT AND LABOUR:TOTAL REFURBISHMENT OF EXISTING LABOUR OFFICE

MANAGED BY

THE DEPARTMENT OF PUBLIC WORKS

TABLE OF CONTENT

1. PREAMBLE

In terms of Construction Regulation 4(1)(*a*) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), and 5(1) construction regulation of 2014, the Department of Public Works, as the Client and/or its Agent on its behalf, shall be responsible to prepare Health & Safety Specifications for any intended construction project and provide any Principal Contractor who is making a bid or appointed to perform construction work for the Client and/or its Agent on its behalf with the same.

The Client's further duties are as described in The Act and the Regulations made there-under. The Principal Contractor shall be responsible for the Health & Safety Policy for the site in terms of Section 7 of the Act and in line with Construction Regulation 5 as well as the Health and Safety Plan for the project.

This 'Health and Safety Specifications' document is governed by the "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognizance should be taken of the fact that no single Act or its set of Regulations can be read in isolation. Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Labour legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document this requirement is limited to all health, safety and environmental issues pertaining to the site of the project as referred to here-in. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily basis. Therefore, due caution is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope

and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard. *This Risk Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan.* The Health and Safety Plan shall include documented 'Methods of Statement' (see definitions under Construction Regulations) detailing the key activities to be performed in order to reduce as far as practicable, the hazards identified in the Risk Assessment.

The Department of Public Works is tasked to provide accommodation and operational facilities to a very large proportion of the approximate 35 National Departments responsible for the governance of the Department of Public Works. A very large number of State employees and public users of the facilities and the services provided there-in directly interacts with the facilities provided by the well-being, health and safety of a great number of people. This Department thus has directly or indirectly, an impact on the Republic of South Africa as well as the National Parliament.

In this a high premium is to be placed on the health and safety of the most valuable assets of the Department of Public Works. These are its personnel, the personnel of its Clients and the physical assets of which it is the custodian and may also include the public as well. The responsibilities the Department and relevant stakeholders have toward its employees and other people present in the facilities or on the sites are captured further in this specification document. These responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

Every effort has been made to ensure that this specification document is accurate and adequate in all respects. Should it however, contain any errors or omissions they may not be considered as grounds for claims under the contract for additional reimbursement or extension of time, or relieve the Principal Contractor from his responsibilities and accountability in respect of the project to which this specification document pertains. Any such inaccuracies, inconsistencies and/or inadequacies must immediately be brought to the attention of the Agent and/or Client.

2. SCOPE OF HEALTH AND SAFETY SPECIFICATION DOCUMENT

These Specifications should be read in conjunction with the Act, the Construction Regulations and all other Regulations and Safety Standards which were or will be promulgated under the Act or incorporated into the Act and be in force or come into force during the effective duration of the project. The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract documentation and technical specifications shall not be interpreted, in any way whatsoever, to countermand or nullify any stipulation of the Act, Regulations and Safety Standards which are promulgated under, or incorporated into the Act.

3. PURPOSE

The Department is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments, and is further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications.

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work for the Department of Public Works. The Principal Contractor (and his /her contractor) is to be briefed on the significant health and safety aspects of the project and to be provided with information and requirements on inter alia:

a) Safety considerations affecting the site of the project and its environment;
b) Health and safety aspects of the associated structures and equipment;
c) submissions on health and safety matters required from the Principal Contractor(and his /her contractor); and
d) the Principal Contractor’s (and his /her contractor) health & safety plan.

To serve to ensure that the Principal Contractor (and his /her contractor) is fully aware of what is expected from him/her with regard to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Regulations made there-under including the applicable safety standards, and in particular in terms of Section 6,7 and 8 of the construction regulation (2014).

To inform the Principal Contractor that the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in its entirety shall apply to the contract to which this specification document applies. The Construction Regulations promulgated on 07 February 2014.

4. DEFINITIONS - The most important definitions in the Act and Regulations pertaining to this specification document are hereby extracted.

"Purpose of the Act" – To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

"Health & Safety Specification" – means a document that includes information required under the construction regulation and obtained from the clients & designers during the early planning & design stage for a specific project on a specific site for use by the contractors when preparing their tenders or bids to clients.

"Health & Safety Plan" – means a document which is site specific and includes all identified hazards, safe work procedures to mitigate, reduce & control the hazards identified in a project.;

"Agent" – means any person who acts as a representative for a client;

“Client” – means any person for whom construction work is performed;

“ Construction Health & Safety Agent (SACPCMP)” – The person or entity appointed by the client through the Agent and who has a full authority and obligation to act on the clients behalf in terms of the construction regulations;

‘‘Construction Work’’ is defined as any work in connection with –

(a) the erection, maintenance, alteration, renovation, 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, clearing of land, the making of an excavation, piling, or any similar type of work;

“Contractor” – means an employer, as defined in Section 1 of the Act, who performs construction work and includes Principal Contractors;

“Contract Amount” Financial value of the contract at the time of the award of the contract, exclusive of all allowance and any value added tax or sales tax which the law requires the employer to pay to the contractor.

“Practical Completion Certificates” A certificates issued in terms of a contract by the employer, signifying that the whole of the construction works have reached a state of readiness for occupation or use for the purposes intended, although some minor work may be outstanding.

“Accident” – means unplanned occurrence that happens due to the unsafe condition and may cause injury to a person, damage to the property, material, plant, equipment and the environment;

“Hazard” – means anything including work activities and practices with the potential to cause harm;

“Risk” – means the likelihood that harm will occur and the subsequent consequences.

“Risk assessment” – means a process to determine any risk associated with any hazard at a construction site in order to identify the steps needed to be taken to mitigate, reduce or control such hazards.

Health and Safety File” – means a file, or other record in permanent form, containing the information required a contemplated in the regulations;

5. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

5.1 Structure and Organization of OH&S Responsibilities

5.1.1. *Overall Supervision and Responsibility for OH&S*

a) The Client and/or its Agent on its behalf to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(c), implements and maintains the agreed and approved H&S Plan. Failure on the part of the Client or Agent to comply with this requirement will not relieve the Principal Contractor from any one or more of his/her duties under the Act and Regulations.
b) The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act to ensure that the Employer (as defined in the Act) complies with the Act. The pro forma Legal Compliance Audit may be used for this purpose by the Principal Contractor or his/her appointed contractor.

c) All OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her/their respective appointment forms to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made

available to the principal Contractor to become part of site records (Health & Safety File).

d) The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6 to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).
e) All Health and Safety Representatives (SHE-Reps) shall act and report as per Section 18 of the Act.

5.12 Required appointments as per the Construction Regulations:-

Item	Regulation	Appointment	Responsible Person
1.	3.	Application Construction work permit	Client
2.	5(1)(k)	Principal contractor for each phase or project	Client
3.	5(6)	Construction Health & Safety Agent	Client
4.	7.(1)(c)	Contractor	Principal Contractor
5.	7(3)	Contractor	Contractor
6.	8(1)	Construction manager	Contractor
7.	8(2)	Assistance Construction manager	Contractor
8.	6(1)	Construction supervisor	Contractor
9.	6(2)	Construction supervisor sub-ordinates	Contractor
10.	8(5)	Construction Safety Officer	Contractor
11.	8(8)	Responsible employee	
12.	9(1)	Person to carry out risk assessment	Contractor
13.	10(1)	Fall protection planner	Contractor
14.	12(1)	Temporal work designer	
15.	12(2)	Supervisor of temporal work operation	
16.	13(1)	Excavation supervisor	Contractor
17.	13(2)(k)	Competent person in the use of explosive for excavations	Contractor
18.	14(11)	Explosives expert	Contractor
19.	14(1)	Supervisor demolition work	Contractor
20.	14(2)	Scaffold supervisor	Contractor
21.	16(1)	Suspended platform supervisor	Contractor
22.	18(1)a	Rope access	Contractor
23.	19(8)(a)	Material hoist inspector	Contractor
24.	20(1)	Bulk mixing plant supervisor	Contractor
25.	21(2)	Explosive actuated fastening device inspector	Contractor
26.	21(2)(g)	Explosive actuated fastening device cartridge, nails and studs: issuer & collector	Contractor
27.	23 (1)	Operator : construction vehicle and mobile plant	Contractor
28.	28 (a)	Stacking and storage supervisor	Contractor
29.	29 (h)	Fire equipment inspector	Contractor

5.2 ***Communication, Participation & Consultation***

5.2.1 Occupational Health & Safety matters/issues shall be communicated between the Employer, the Principal Contractor, the other Contractors, the Designer and other concerned parties shall be through the H&S Committee or other means determined by the client.

5.2.2 In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

5.2.3 Consultation with the workforce on OH&S matters will be through their Supervisors and H&S Representatives ('SHE – Reps')

5.2.4 The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and/or its Agent on its behalf and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

6. INTERPRETATION

a) The Occupational Health and Safety Act and all its Regulations, with the exception of the Construction Regulations, distinguish between the roles, responsibilities and functions of employers and employees respectively. It views consultants and contractors as employees of the "owner" of a construction or operational project, the "owner" being regarded as the employer.

b) (The position taken by the Construction Regulations is that the "owner", in terms of its instructions, operates (has to operate) in the role of client as per relevant definition. The contractors working for the "client" are seen to be in two categories, i.e. the Principal Contractor and Contractors.

c) The Principal Contractor has to take full responsibility for the health and safety on the site of the relevant project / contract. This includes monitoring health and safety conditions and overseeing administrative measures required by the Construction Regulations from all contractors on the project site.

7. RESPONSIBILITIES

7.1 Client

a) The Client or his appointed Agent on his behalf will appoint each Principal Contractor for this project or phase/section of the project in writing for assuming the role of Principal Contractor as intended by the Construction Regulations.

b) The Client or his appointed Agent on his behalf shall discuss and negotiate with the Principal Contractor the contents of the health and safety plan of the both Principal Contractor and Contractor for approval.

c) The Client or his appointed Agent on his behalf will take reasonable steps to ensure that the health and safety plan of both the Principal Contractor and Contractor is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.

d) The Client or his appointed Agent on his behalf, will prevent the Principal Contractor and/or the Contractor from commencing or continuing with construction work should the Principal Contractor and/or the Contractor at any stage in the execution of the works be found to:

- have failed to have complied with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary in terms of the Act;
- have failed to implement or maintain their health and safety plan;
- have executed construction work which is not in accordance with their health and safety plan; or

- act in any way which may pose a threat to the health and safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity.

7.2 **Principal Contractor**

a) The Principal Contractor shall accept the appointment under the terms and Conditions of Contract. The Principal Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction. Annexure 2 of this construction regulation contains a “Notification of Construction Work” form. The Principal Contractor shall submit the notification in writing prior to commencement of work and inform the Client or his Agent accordingly.

b) The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation.

c) The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to this contract.

d) The Principal Contractor shall provide and demonstrate to the Client a suitable and sufficiently documented health and safety plan based on this Specification, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the health and safety plans of all Sub-contractors for which he has to take responsibility in terms of this contract.

e) The Principal Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works.

f) The Potential Principal Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and

safety requirements, the Act and Construction Regulations. (Note: This shall have to be contained in the conditions of tender upon which a tenderer's offer is based.)

g) The Principal Contractor shall consistently demonstrate his competence and the adequacy of his resources to perform the duties imposed on the Principal Contractor in terms of this Specification, the Act and the Construction Regulations.

h) The Principal Contractor shall ensure that a copy of his health and safety plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractor.

i) The Principal Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act and the Construction Regulations, is opened and kept on site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor shall hand over a consolidated health and safety file to the Client.

j) The Principal Contractor shall, throughout execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor.

k) The Principal Contractor shall from time to time evaluate the relevance of the Health and Safety Plan and revise the same as required, following which revised plan shall be submitted to the Client and/or his/her Agent for approval.

7.3 Contractor

The contractor must demonstrate to the Principal Contractor that he has the Necessary competencies and resources to perform the construction work safely.

7.4 Responsibilities of **Construction Health & Safety Agent (SACPCMP)**

The construction Health & Safety Agent act as a link between the client, Principal Contractor and the project team members with respect to health & Safety, They are Required to ensure that the client carry out its H&S responsibilities in terms of Legislation as well as to co-ordinate and ensure good H&S practices are maintained Throughout the duration of the project. In many cases this role starts from project Initiation to project close-out.

a) H&S competence*:* In the event that the client is unable to satisfy the requirements of the Construction Regulations for whatever reasons, the construction H&S agent may be appointed to perform these functions on behalf of the client. Given the need to appoint a registered construction H&S agent that is competent and adequately resourced with respect to H&S matters.

b) H&S goals*:* It is important that the construction H&S agents demonstrate clearly to clients how they are going to contribute to the achievement of any client H&S goals and objectives. They should also set their own H&S goals.

c) H&S responsibilities*:* Prior to accepting the H&S agent appointment from clients, H&S agents need to ensure that they brief clients fully on the client's particular responsibilities in terms of the OH&SA of 1993 and Construction Regulations as amended from time to time. In the absence of acceptance by clients of these responsibilities, H&S agents will not be able to adequately meet their own H&S responsibilities and duties.

d) H&S information: H&S agents must provide the designer or design team with all H&S information to enable them to conduct a design HIRA to identify the significant hazards that need to be included in the H&S specification. This information may be gathered from multiple sources such as, for example, discussion with the client, previous historical use of the site or facility, previous surveys and investigations and past H&S files.

8. SCOPE OF WORK

Repairs and renovations to the existing labour offices building, carports and site works.

The work consists of the following:

1. Repair all cracks in walls and floors.
2. Paint the internal and external walls.
3. Replace the wall tiles in the ablutions and kitchens with porcelain tiles.
4. Replace the floor coverings in passages, offices, ablution areas and kitchens with porcelain tiles.
5. Replace the existing ceilings with new suspended ceilings, gypsum ceilings and fibre cement ceilings.
6. Replace all inside, outside doors and locks.
7. Service, repair and paint the existing windows, including new glazing where needed.
8. Replace the damaged roof tiles, waterproof roof tiles and paint roof tiles.
9. Replace the existing rainwater gutters and down pipes.
10. Replace the sanitary fittings and pipes.
11. Replace the water supply to the building complex.
12. Replace the fencing at the back of the site.
13. Replace the paving at the parking area at the backside of the building to new levels, including new stormwater, channels, stormwater pipes and stormwater catchpits. This is to resolve the stormwater problem.
14. Painting the existing carports roof, steel structure, sliding gates and service existing sliding gates.
15. Replace the electricity installation of the building.
16. Replace some air-conditioners and service the existing air-conditioners in the offices.
17. Install a new electrical generator.

9. PREPARING A HEALTH & SAFETY PLAN

(a) The level of detail required for a H&S plan will depend on how complex the workplace is (in particular, the number of contractors at the workplace at any one time) and the risks involved in the work. The plan must be easily accessible in a construction site and it must be clearly understood by management, supervisors & workers on construction site.

(b) The plan must be implemented, maintained and kept up to date during the construction of the project.

(c) The principal contractor should prepare a H&S plan that includes

- project information;
- client requirements for H&S management on the project;

Environmental restrictions and existing on-site risks arrangements, imposed by others or developed by the principal contractor, to control significant site

H&S risks; H&S file & project H&S review.

(d) The H&S plan should include the following information:

- details of the client, that is the person commissioning the construction work, for example their name, representative and contact details;
  details of the principal contractor;
- details of the construction project, for example address of the workplace, anticipated start and end date and a brief description of the type of construction work that the H&S plan will cover;
- details on how subcontractors will be managed and monitored, including how the principal contractor intends to implement and ensure compliance with the H&S plan such as checking on the performance of subcontractors and how non-compliance will be handled; and
- details on how the risks associated with falls, falling objects, moving plant, electrical work and all high risk construction work that will take place on a construction project will be managed.

(e) The H&S plan should also include information on:

- the provision and maintenance of a hazardous chemicals register, safety data sheets and hazardous chemicals storage;
- the safe use and storage of plant;
- the development of a construction project traffic management plan;
- obtaining and providing essential services information – electrical, gas, telecom, water and similar services;
- workplace security and public safety; and
- ensuring workers have appropriate licences and training to undertake the construction work.

(f) The H&S plan must contain:

- a general description of the type of work activities involved in the project and not just a description of the facility to be constructed;
- the project program or schedule details, including start and finish dates, showing principal activities;
- details of client, design team, principal contractor, subcontractors, and major suppliers; and
- extent and location of relevant existing records, surveys, site investigation and geotechnical reports, ‘as-built’ plans, H&S files.

10. HEALTH AND SAFETY FILE

a) The H&S file is a document prepared by the principal contractor containing important project H&S information for use by the owner of the completed structure after construction has been completed.

b) The principal contractor is responsible for producing an H&S file. It contains important project H&S information for use by the owner of the completed structure after construction has been completed. It is essential that the process of compiling the file commences as early as possible to ensure sufficient time to gather the required information.

c) The Principal Contractor must, in terms of Construction Regulation 7(7), keep a Health & Safety File on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. A more detailed list of documents and other legal requirements that must be kept in the Health & Safety File.

d) The contractor must ensure that the client's format and layout of the H&S file is adhered to. The contractor must identify the responsible person that will prepare the H&S file and who will be responsible for the drafting of as-built drawings. The contractor must establish procedures:

e) The Health and Safety File will remain the property of the Client and/or its Agent on its behalf throughout the period of the project and shall be consolidated and handed over to the Client and/or its Agent on its behalf at the time of completion of the project.

11. OH&S GOALS AND OBJECTIVES AND ARRANGEMENTS FOR MONITORING AND REVIEWING OH&S PERFORMANCE

The Principal Contractor is required to maintain an acceptable disabling incident frequency rate (DIFR) and report on this to the Client and/or its Agent on its behalf on a monthly basis.

11.1 IDENTIFICATION OF HAZARDS AND DEVELOPMENT OF RISK ASSESSMENTS, STANDARD WORKING PROCEDURES (SWP) AND METHOD STATEMENTS

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project.

The identification of hazards is over and above the hazards identification programme and those hazards identified during the drafting of the Health and Safety Plan.

11.1.1 Monthly Audit by Client and/or its Agent.

The Client and/or its Agent on its behalf will be conducting Periodic Audits at times agreed with the Principal Contractor Audit to comply with Construction Regulation 4(1)(*d*) to ensure that the principal Contractor has implemented, is adhering to and is maintaining the agreed and approved OH&S Plan.

a) A representative of the Principal Contractor and the relevant Health and Safety Representative(s) (SHE-Reps) must accompany the Client and/or its Agent on its behalf on all Audits and Inspections and may conduct their own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results. The Client and/or its Agent on its behalf may require to be handed a copy of the minutes of the previous Health and Safety Committee meeting reflecting possible recommendations made by that committee to the Employer for reference purposes.

11.1.2 Health & Safety incident/accident reporting & investigations

a) The Principal Contractor shall report all incidents where an employee is injured on duty to the extent that he/she:

i. dies
ii. becomes unconscious
iii. loses a limb or part of a limb
iv. is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

i. a major incident occurred
ii. the health or safety of any person was endangered
iii. where a dangerous substance was spilled
iv. the uncontrolled release of any substance under pressure took place
v. machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
vi. Machinery ran out of control, to the Provincial Director of the Department of Labour within seven days and at the same time to the Client and/or its Agent on its behalf.

b) The Principal Contractor is required to provide the Client and/or its Agent on its behalf with copies of all statutory reports required in terms of the Act and the Regulations.

c) The Principal Contractor is required to provide the Client and/or its Agent on its behalf with a monthly “SHE Risk Management Report”.

d) The Principal Contractor is required to provide a.s.a.p. the Client and/or its Agent on its behalf with copies of all internal and external accident/incident investigation reports.

The Principal Contractor is responsible to oversee the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to receive first aid or be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9)

(e) The results of the investigation to be entered into the Accident/Incident Register listed above. (General Administrative Regulation 9)

(f) The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar incidents in future.

(g) The Principal Contractor is responsible for the investigation of all accidents relating to the construction site and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

(h) Notwithstanding the requirements of Section 24 of the Act, ALL incidents shall be investigated and reported on in writing, irrespective of whether such incident gave rise to injury or damage.

- Determine the underlying H&S deficiencies and other contributory factors
- Identification of corrective/preventative actions and continual improvement
- Communicating the outcome/results and documenting the events of the investigation.

(i) **Reporting Of Near-Misses**

- Department of Public Works views the reporting of near misses as a critical component in creating a positive health and safety awareness culture on site.
- Department of Public Works retains the right to enforce the reporting of near misses within 24 hours of occurrence.

12. Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and Standard Work Processes at each Production Planning and Progress Report meeting as the construction work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.

12.1 Site Rules and other Restrictions

a) *Site OH&S Rules*

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction. When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

b) ***Security Arrangements***

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees shall at all times be provided with fulltime supervision while on site. The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period.

If not already tasked to the H&S Officer appointed in terms of Construction Regulation, the Principal Contractor must appoint a competent person who must develop contingency plans for any emergency that may arise on site as indicated by the risk assessments.

12.1.1 Appointment of Health & Safety Representatives

a) H&S Representatives('SHE – Reps')

Where the Principal Contractor employs more than 20 persons (including the employees of other Contractors (sub-contractors) he has to appoint one H&S Representatives for every 50 employees or part thereof. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

H&S Representatives must be appointed in writing and the designation shall be in accordance with the Collective Agreement as concluded between the parties as is required in terms of General Administration Regulation 6.

12.1.2 Duties and Functions of the H&S Representatives

- The Principal Contractor must ensure that the designated H&S Representatives conduct at least a weekly inspection of their respective areas of responsibility using a checklist developed by a Principal Contractor.
- The report must be consolidated and submitted to the Health & Safety Committee.
- H&S Representatives must form part of the incident/accident investigating team.

12.1.3 Establishment of H&S Committee(s)

- The Principal Contractor must establish H&S Committees consisting of designated H&S Representatives together with a number of Employers Representatives appointed as per Section 19(3) that are not allowed to exceed the number of H&S Representatives on the committee.
- The persons nominated by the employer on a H&S Committee must be designated in writing for such period as may be determined by him. The H&S Committee shall co-opt advisory (temporary) members and determine the procedures of the meetings including the chairmanship.

- The H&S Committee must meet minimum monthly and consider, at least, an agreed Agenda for the first meeting. Thereafter the H&S Committee shall determine its own procedures.

12.1.4 Training & Awareness

The contents and syllabi of all training required by the Act and Regulations including any other related or relevant training as required must be included in the Principal Contractor's Health and Safety Plan and Health and Safety File.

a) ***Training & Induction***

All employees performing work or task on site that potentially impact on H&S must be competent & have the necessary appropriate education, training & experience.

All the training must be closely aligned with the risk profile of the project; procedures must be put in place to ensure that all workers are aware of the consequences of their work activities & benefits of improved H&S performance.

All employees of the Principal and other Contractors must be in possession of proof of General Induction training

b) ***Site Specific Induction Training***

All employees of the Principal and other Contractors must be in possession of Site Specific Occupational Health and Safety Induction or other qualifying training.

c) Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training.

13. PROJECT/SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

a) Clearing & grabbling the area/site
b) Site establishment
c) Dealing with existing structures
d) Location of existing services
e) Boundary & Access control/Public liability exposures
f) Protection against heat exhaustion, dehydration, wet & cold conditions
g) Dealing with HIV & aids other related diseases
h) Use of portable electrical & explosive tools
i) Any Excavation work
j) Any welding work
k) Loading & offloading of trucks
l) Driving & operations of Construction vehicles & mobile plant
m) Temporal works and
n) Construction work as defined in the construction regulation 2014

14. OUTLINED DATA, REFERENCES AND INFORMATION ON CERTAIN AND/OR SPECIFIC OBLIGATORY REQUIREMENTS TO ENSURE COMPLIANCE

Administrative & Legal Requirements

OHS Act Section/ Regulation	Subject	Requirements
Construction. Regulation	**Notice of carrying out Construction work**	• Department of Labour notified • Copy of Notice available on Site
General Admin. Regulation 4	**Copy of OH&S Act (Act 85 of 1993)**	• Updated copy of Act & Regulations on site. • Readily available for perusal by employees.
COID Act Section 80	**Registration with Compensation Insurer.**	• Written proof of registration/Letter of good standing available on Site
Construction. Regulation 4 & 5(1)	**H&S Specification & Programme**	• H&S Spec received from Client and/or its Agent on its behalf • OH&S programme developed & Updated regularly
Section 8(2)(d) Construction. Regulation 7	**Hazard Identification & Risk Assessment**	• Hazard Identification carried out/Recorded • Risk Assessment and – Plan drawn up/Updated • RA Plan available on Site • Employees/Sub-Contractors informed/trained
Section 16(2)	**Assigned duties (Managers)**	• Responsibility of complying with the OH&S Act assigned to other person/s by CEO.
Construction. Regulation 6(1)	**Designation of Person Responsible on Site**	• Competent person appointed in writing as • Construction Supervisor with job description
Construction. Regulation 6(2)	**Designation of Assistant for above**	• Competent person appointed in writing as • Assistant Construction Supervisor with job description
Section 17 & 18 General Administrative Regulations 6 & 7	**Designation of Health & Safety Representatives**	• More than 20 employees - one H&S Representative, one additional H&S Rep. for each 50 employees or part thereof. • Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7 • Meaningful H&S Rep. reports. • Reports actioned by Management.

Section 19 & 20 General Administrative Regulations 5	**Health & Safety Committee/s**	• H&S Committee/s established. • All H&S Reps shall be members of H&S Committees • Additional members are appointed in writing. • Meetings held monthly, Minutes kept. • Actioned by Management.
Section 37(1) & (2)	**Agreement with Mandatories/ (Sub-)Contractors**	• Written agreement with (Sub-)Contractors • List of SubContractors displayed. • Proof of Registration with Compensation Insurer/Letter of Good Standing • Construction Supervisor designated • Written arrangements re. • H&S Reps & H&S Committee • Written arrangements re. First Aid
Section 24 & General Admin. Regulation 8 COID Act Sect.38, 39 & 41	**Reporting of Incidents (Dept. of Labour)**	• Incident Reporting Procedure displayed. • All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1)(WCL 1 or 2) and to the Client and/or its Agent on its behalf • Cases of Occupational Disease Reported • Copies of Reports available on Site • Record of First Aid injuries kept
General Admin. Regulation 9	**Investigation and Recording of Incidents**	• All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. • Copies of Reports (Annexure 1) available on Site • Tabled at H&S Committee meeting • Action taken by Site Management.
Construction. Regulation 8	**Fall Prevention & Protection**	• Competent person appointed to draw up the Fall Protection Plan • Proof of appointees competence available on Site • Risk Assessment carried out for work at heights • Fall Protection Plan drawn up/updated • Available on Site
Construction. Regulation Driven Machinery Regulations 18 & 19	**Cranes & Lifting Machines Equipment**	• Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment • Written Proof of Competence of above appointee available on Site. • Cranes & Lifting tackle identified/numbered

		• Register kept for Lifting Tackle • Log Book kept for each individual Crane • Inspection: - All cranes - **daily by operator** - Tower Crane/s - **after erection/6monthly** - Other cranes - **annually by comp. person** • - Lifting tackle(slings/ropes/chain slings etc.) - daily or before every new application
General Safety Regulation 8(1)(a)	**Designation of Stacking & Storage Supervisor**.	• Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage • Written Proof of Competence of above appointee available on Site
Construction. Regulation Environmental Regulation 9	**Designation of a Person to Co-ordinate Emergency Planning And Fire Protection**	• Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures • Emergency Evacuation Plan developed: • Drilled/Practiced • Plan & Records of Drills/Practices available on Site • Fire Risk Assessment carried out • All Fire Extinguishing Equipment identified and on ***register***. • Inspected weekly. Inspection Register kept • Serviced annually
General Safety Regulation 3	**First Aid**	• Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) • First Aid freely available • Equipment as per the list in the OH&S Act. • One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) • List of First Aid Officials and Certificates • Name of person/s in charge of First Aid box/es displayed. • Location of First Aid box/es clearly indicated. • Signs instructing employees to report all • Injuries/illness including first aid injuries
General Safety Regulation 2	**Personal Safety Equipment (PSE)**	• PSE Risk Assessment carried out • Items of PSE prescribed/use enforced

		• Records of Issue kept • Undertaking by Employee to use/wear PSE • PSE remain property of Employer, not to be removed from premises GSR 2(4)
General Safety Regulation 9	**Inspection & Use of Welding/Flame Cutting Equipment**	• Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment • Written Proof of Competence of above appointee available on Site • All new vessels checked for leaks, leaking vessels NOT taken into stock but returned to supplier immediately • Equipment identified/numbered and entered into a register • Equipment inspected weekly. Inspection Register kept • Separate, purpose made storage available for full and empty vessels
General Safety Regulation 13A	**Inspection of Ladders**	• Competent person appointed in writing to inspect Ladders • Ladders inspected at arrival on site and weekly thereafter. Inspections register kept • Application of the types of ladders (wooden, aluminium etc.) regulated by training and inspections and noted in register
General Safety regulation 13B	**Ramps**	• Competent person appointed in writing to supervise the erection & inspection of Ramps. Inspection register kept. • Daily inspected and noted in register

15. THE PRINCIPAL CONTRACTOR'S GENERAL DUTIES

- The Principal Contractor shall at all times ensure his status of an "employer" as referred to in the Act, and will abide by his/her responsibilities, duties and functions as per the requirements of the Act and Regulations with specific reference to Section 8 of the Act.

- The Principal Contractor shall keep, and on demand make available, a copy of the Act on site at all times and in addition to that he/she will introduce and maintain a file titled "Health and Safety File", or other record in permanent form, which shall contain all relevant aspects and information as contemplated in the Construction Regulations. He/she will make this file available to the client or his representative whenever necessary or on request to an interested party.
- The project under control of the Principal Contractor shall be subject to periodic health and safety audits that will be conducted by the client at intervals agreed upon between the Principal Contractor and the client, provided such intervals will not exceed periods of one month.
- The Principal Contractor is to ensure that he/she and all persons under his control on the construction site shall adhere to the above specifications.
- The Principal Contractor should note that he/she shall be held liable for any anomalies including costs and resulting deficiencies due to delays caused by non-conformance and/or non-compliance to the above Health and Safety Specifications and the Health and Safety Plan based on these specifications.

16. THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES

The Principal Contractor's specific duties in terms of these specifications are detailed in the Construction Regulations as published under government notice 07 August 2014, stipulated in Section 7.

17. THE PRINCIPAL CONTRACTOR'S SPECIFIC RESPONSIBILITIES WITH REGARD TO HAZARDOUS ACTIVITIES

The following examples of activities are identifiable as hazardous in terms of the Construction Regulations. The contractor shall execute the activities in accordance with the following Construction Regulations and other applicable regulations of the Act:

- Fall protection
- Structures
- Excavation work
- Demolition work
- Scaffolding
- Construction vehicles & mobile plant.
- Water environments
- Housekeeping on construction sites
- Fire precautions on construction sites.

This list must not be taken to be exclusive or exhaustive! All of the above requirements will be read in conjunction with the relevant regulations and health and safety standards as required by the Act. All documents and records required by the Construction Regulations will be kept in the Health and Safety File and will be made available at any time when required by the client or his representative, or on request to an interested party.

18. GENERAL NOTES TO THE PRINCIPAL CONTRACTOR

Legal Framework

Part of legal obligations

The more important Acts and relevant subordinate/secondary legislation as well as other (inter alia Local Government) legislation that also apply to the State as well as to State owned buildings and premises: -

a. The latest issue of SABS 0142: "Code of Practice for the Wiring of Premises"
b. The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority
c. The Fire Brigade Services Act 1987, Act 99 of 1987 as amended
d. The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as amended and relevant proclaimed Regulations (SABS 0400)
e. The Post Office Act 1958 (Act 44 of 1958) as amended
f. The Electricity Act 1984, Act 41 of 1984
g. The Regulations of Local Gas Board(s), including Publications of the SABS Standards and Codes of Practice, with specific reference to GNR 17468 dated 4th October 1997
h. Legislation pertaining to water usage and the environment
i. Legislation governing the use of equipment, which may emit radiation (e.g. X-Rays etc.)
j. Common Law

19. HOUSE KEEPING

Good housekeeping will be maintained at all times as per Construction Regulation No. 25. Poor housekeeping contributes to three major problems, namely, costly or increased accidents, fire or fire hazards and reduction in production. Good housekeeping will enhance production time.

In promotion of environmental control all waste, rubble, scrap etc, will be disposed of at a registered dump site and records will be maintained. Where it is found to be impractical to use a registered dump site or it is not available, the Principal Contractor will ensure that the matter is brought to record with the client or his representative, after which suitable, acceptable alternatives will be sought and applied.

Dross and refuse from metals, and waste matters or by-products whose nature is such that they are poisonous or capable of fermentation, putrefaction or constituting a nuisance shall be treated or disposed of by methods approved of by an inspector.

NOTE: No employer (Principal Contractor) shall require or permit any person to work at night or after hours unless there is adequate, suitable artificial lighting including support services in respect of Health and Safety.

a) Facilities

The site establishment plan shall make provision for:

b) Dining room facilities

The contractor shall make provision for adequate dining room facilities for his employees on site.

c) Change rooms

The contractor shall make provision for adequate change rooms for his employees on site.

d) Ablution facilities

The contractor shall make provision for adequate ablution facilities for his employees on site.

These facilities shall be maintained by the contractor.

e) Smoking Areas

Designated smoking areas shall be established by Department of Public Works.

f) Drinking Water Facilities

The provision of drinking water facilities shall be negotiated between the Contractor and Department of Public Works.

g) Equipment Compliance Certificates

Before equipment is brought on site valid certificates of compliance issued by a competent person shall be presented. The equipment includes but shall not be limited to:

i. lifting equipment and lifting tackle
ii. power driven machinery
iii. electrical equipment
iv. testing and monitoring equipment

h) Barricading

All barricading shall be of the rigid type unless the use of non-rigid barricading has been approved in writing by the Department of Public Works Project Manager. The contractors' barricading standard shall be included in the Health and Safety Plan.

Where more than one contractor is working on a site, the fixed barricading shall be clearly marked with the company's name, site contact person as well as the contact number/s.

i) Erection of Structures for Logistic Support

Prior to site establishment Department of Public Works shall approve the contractor's site plan.

Department of Public Works shall approve all structures erected for logistical support by the contractor. These structures include fences, workshops, tool sheds, offices, ablution facilities, etc.

j) Salvage Yard Management

Depending on the site specific arrangements and procedures, Department of Public Works may provide the salvage yard and the resources to manage it.

The salvage yard management shall conform to safety, health and environmental requirements. The contractors are required to move the equipment from the place of work to the salvage yard.

k) Fall Arrest and Prevention Equipment

Approved fall prevention equipment shall be used at heights of less than 2.0 metres. Above heights of 2.0 metres fall prevention equipment shall include fall arrest Equipment. Users of fall arrest equipment shall, amongst other things be trained in what an appropriate load bearing point is for connecting fall prevention equipment. Any deviation from this requirement shall be negotiated and agreed with Department of Public Works in writing.

l) Hazardous Chemical Substances Waste Removal

Department of Public Works shall provide a facility to collect all hazardous chemical waste material.

The contractor shall provide adequately marked and sealable containers to transport The hazardous chemical waste from the source to the approved Department of Public Works disposal point.

m) Personal Protective Equipment (PPE)

Personal protective equipment issued shall be specific to the risks associated with the work to be performed and specific to conditions on site and shall comply with South African National Standards (SANS) or similar.

20. LOCKOUT SYSTEMS

A system of control shall be established in order that no unauthorized person can energize a circuit, open a valve, or activate a machine on which people are working or doing maintenance, even if equipment, plant or machinery is out of commission for any period, thus eliminating injuries and damage to people and equipment as far as is reasonably practicable.

Physical/mechanical lock-out systems shall be part of the safety system and included in training. Lockouts shall be tagged and the system tested before commencing with any work or repairs.

21. IMPORTANT LISTS AND RECORDS TO BE KEPT

The following are lists of several records that are to be kept in terms of the Construction Regulations. The lists are:

i. List of appointments
ii. List of record keeping responsibilities
iii. Inspection checklist

a) Contractor Risk Assessment Process

The risk assessment process shall include:

1) an evaluation of the method of the work to be conducted
2) the method statement on the procedure to be followed in performing the task shall be developed
3) the risk assessment will also include activities like:
    i. Transportation of passengers and goods to and from site
    ii. Site establishment
    iii. Physical and mental capabilities of employees
    iv. Others as may be specified.
4) the hazards as listed in the paragraph – Site Specific Health and Safety Hazards

5) a review plan for risk assessments shall provide for:
   i. the quarterly review of all applicable risk assessments
   ii. the review of an assessment if there is reason to believe that the previous assessment is no longer valid, or there has been a change in a process, work methods, equipment or procedures and working conditions
   iii. Risk assessment/s to be reviewed if the outcome of incident investigations and audits etc. requires such action.

A pre - task risk assessment shall be conducted in writing on every task and be facilitated by the team leader. All risk assessments and pre-task risk assessments shall be filed and be available on site.

b) **Risk Profile**

All contractors shall submit a risk profile of the work to be conducted with their Health and Safety Plan.

c) Risk Based Inspection Program

The inspection programme shall be risk based. The inspection plan shall form part of the Health and Safety Plan.

IMPORTANT CONTACT DETIALS

(FOR HEALTH & SAFETY ASPECTS ONLY)

The contractor is to add all the important contact information about essentials services, support and assistance.

	SERVICE	NUMBER	CONTACT PERSON
	Hospital		
	Ambulance		
	Water		
	Electricity		
	Police		
	Fire Brigade		
	Engineer		

ADD OTHER IMPORTANT HEALTH & SAFETY CONTACT DETAILS AS MAY BE FOUND NECESSARY.

SECTION 37(2) AGREEMENTS

CONCLUDED BETWEEN

DEPARTMENT OF PUBLIC WORKS

(Hereinafter referred to as Department of Public Works)

AND

……

(Name of contractor/supplier/Agent/)

I, ……..[*(name*)representing ……..... [*Insert name of contractor/supplier*], do hereby acknowledge that ……... [*insert name of contractor/supplier*] is an employer in his/her own right, with duties as prescribed in the Occupational Health and Safety Act No. 85 of 1993 ("the Act"), as amended, and agree to ensure that all work will be performed and/or machinery or plant used in accordance with the provisions of the Act.

I undertake that …… [*insert name of contractor/supplier*] shall strictly adhere to, and ensure that his/her employees adhere to, the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

I have been provided with SHE specifications for project/service ……[*insert brief details of project/service, for example, name, contract/project number*] ……and will comply with the requirements set out in these.

I accept and agree that the SHE specifications constitute arrangements and procedures between …….. [*Insert name of contractor/supplier/Agent* **Safety Manager/Safety Officer**] and Department of Public Works, which will ensure compliance by ……. [*Insert name of contractor/supplier*] with the provisions of the Act, as contemplated in section 37(2) of the Act.

This agreement constitutes the sole agreement between the parties, and no variation, modification, or waiver of any of the provisions of this agreement or consent to any departure from these shall, in any manner, be of any force or effect, unless confirmed in writing and signed by both parties, and such variation, modification, waiver, or consent shall be effective only in the specific instance and for the specific purpose and to the extent for which it was made or given.

This agreement is signed on behalf of the parties, each signatory to this warranting that he/she has the requisite authority to do so.

Signed this …….. day of ……..……..... 20 …… at

……..……. (*Place*)

(*Full name*)…… (*Signature*) ……..…on

behalf of …….. **(Supplier/contractor/Agent)**

Contractor Responsible Manager (*responsible for signing the Department of Public Works' contract on behalf of the contractor*)

Witnesses

1. ……
2. ……..……

Signed this …… day of ……...20……

at …….……..…… (*Place*)

(*Full name*…….. (*Signature*)…….……on

Behalf of **Department of Public Works.**

(Contracts and/or Project Manager or Department of Public Works representative)

Witnesses

1. ……...
2. …….

PROJECT: *Upington:Employment and Labour:Total refurbishment of existing labour office*

WCS NO: _____ (works control system number)

SUPERVISION BY THE DEPARTMENT OF PUBLIC WORKS:

Mr /Ms/Me - CONSTRUCTION PROJECT MANAGER

G. Martin
Private Bag X 5002
Kimberley
8300

Tel: 082 824 7777

Mr /Ms/Me **AGENT:** Principal

KMS ARCHITECTS (PTY) LTD
Kruger Office Park
100 Marshall Street
Polokwane
0669

Tel: 015 590 0995

SUPERVISION BY THE PRINCIPAL CONTRACTOR:

PRINCIPAL CONTRACTOR: (full particulars of principle contractor / contractor)

Mr /Ms/Me - CONSTRUCTION HEALTH & SAFETY OFFICER
(add full details and contact of this officer)

……..
……..

Mr /Ms/Me - CONSTRUCTION HEALTH & SAFETY MANAGER
(add full details of this officer)

……..
……..

Mr /Ms/Me - **CONSTRUCTION HEALTH & SAFETY AGENT**
(add full details of this officer)

……..
……..

Mr /Ms/Me - **CONSTRUCTION MANAGER**
(add full details of the head of the project)

……..
……..

EMPLOYMENT AND TRAINING FOR LABOUR EPWP-NYS PROJECTS SPECIFICATION

ADDITIONAL SPECIFICATION

SL EMPLOYMENT AND TRAINING OF YOUTH WORKERS ON THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) INFRASTRUCTURE PROJECTS: NATIONAL YOUTH SERVICE (NYS)

CONTENTS

SL 01 SCOPE

This project is part of the Expanded Public Works Programme and the National Youth Service Programme and aims to train young people and provide them with practical work experience as part of this programme. Youth aged between 18 and 35 will be recruited and trained in skills relevant to the work to be done on this project. These youth will have to be employed by the contractor as part of this project so that they can gain their work experience on these projects. The training of the youth will be coordinated and implemented by a separate service provider. This service provider will provide the contractor with a list of all the youth and the training each of these youth have received. The Contractor will be required to employ all of these youth for a minimum period of 6 months. Furthermore the Contractor will be required to supervise these youth to ensure that the work they perform is of the required standard. If necessary the contractor's staff will be required to assist and mentor the youth to ensure that they are able to perform the type of work they need to do to the satisfactory standards required. The contractor will not be required to employ all youth in the programme at the same time if not feasible, but may rotate the youth on the project, as long as all youth are employed for the minimum duration stated earlier.

This specification contains the standard terms and conditions for workers employed in elementary occupations and trained on a Special Public Works Programme (SPWP) for the National Youth Services Programme. These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.

SL 02 TERMINOLOGY AND DEFINITIONS

SL 02.01 TERMINOLOGY

(a)	SPWP	The Code of Good Practice for Special Public Works Programmes, which has been gazetted by the Department of Labour, and which provides for special conditions of employment for these EPWP projects. In terms of the Code of Good Practice, the workers on these projects are entitled to formal training, which will be provided by training providers appointed (and funded) by the Department of Labour. For projects of up to six months in duration, this training will cover life-skills and information about other education, training and employment opportunities.
(b)	EPWP	Expanded Public Works Programme, a National Programme of the government of South Africa, approved by Cabinet.
(c)	DOL	Department of Labour.

SL 02.02 DEFINITIONS

(a)	“employer”	means the contractor or any party employing the worker / beneficiary under the EPWP – NYS Programme.
(b)	“client”	means the Department of Public Works.
(c)	“ worker / trainee”	means any person working or training in an elementary occupation on a SPWP.

SL 03 APPLICABLE LABOUR LAWS

In line with the Expanded Public Works Programme (EPWP) policies, the Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of labour in government Notice No. R63 of 25 January 2002, of which extracts have been reproduced below in clauses

SL 04, shall apply to works described in the scope of work and which are undertaken by unskilled or semi-skilled workers.

The Code of Good Practise for Employment and Conditions of Work for Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No. R64 of 25 January 2002 shall apply to works described in the scope of work and which unskilled or semi-skilled workers undertake.

SL 04 EXTRACTS FROM MINISTERIAL DETERMINATION REGARDING SPWP

SL 04.01 DEFINITIONS

In this specification –

(a) "department" means any department of the State, implementing agent or contractor;

(b) "employer" means any department that hires workers to work in elementary occupations on a SPWP;

(c) "worker" means any person working in an elementary occupation on a SPWP;

(d) "elementary occupation" means any occupation involving unskilled or semi-skilled work;

(e) "management" means any person employed by a department or implementing agency to administer or execute a SPWP;

(f) "task" means a fixed quantity of work;

(g) "task-based work" means work in which a worker is paid a fixed rate for performing a task;

(h) "task-rated worker" means a worker paid on the basis of the number of tasks completed;

(i) "time-rated worker" means a worker paid on the basis of the length of time worked

(j) "Service Provider" means the consultant appointed by Department to coordinate and arrange the employment and training of labour on EPWP infrastructure projects.

SL 04.02 TERMS OF WORK

(a) Workers on a SPWP are employed on a temporary basis.

(b) A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.

(c) Employment on a SPWP does not qualify as employment and a worker so employed does not have to register as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

SL 04.03 NORMAL HOURS OF WORK

(a) An employer may not set tasks or hours of work that require a worker to work–

(i) more than forty hours in any week

(ii) on more than five days in any week; and

(iii) for more than eight hours on any day.

(b) An employer and a worker may agree that the worker will work four days per week. The worker may then work up to ten hours per day.

(c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks (based on a 40-hour week) allocated to him.

Every work is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

SL 04.04 MEAL BREAKS

(a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

(b) An employer and worker may agree on longer meal breaks.

(c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take

reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

(d) A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

SL 04.05 SPECIAL CONDITIONS FOR SECURITY GUARDS

(a) A security guard may work up to 55 hours per week and up to eleven hours per day.

(b) A security guard who works more than ten hours per day must have a meal break of at least one hour duration or two breaks of at least 30 minutes duration each.

SL 04.06 DAILY REST PERIOD

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

SL 04.07 WEEKLY REST PERIOD

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

SL 04.08 WORK ON SUNDAYS AND PUBLIC HOLIDAYS

(a) A worker may only work on a Sunday or public holiday to perform emergency or security work.

(b) Work on Sundays is paid at the ordinary rate of pay.

(c) A task-rated worker who works on a public holiday must be paid –

(i) the worker's daily task rate, if the worker works for less than four hours;

(ii) double the worker's daily task rate, if the worker works for more than four hours.

(d) A time-rated worker who works on a public holiday must be paid –

(i) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;

(ii) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

SL 04.09 SICK LEAVE

(a) Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.

(b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

(c) A worker may accumulate a maximum of twelve days' sick leave in a year.

(d) Accumulated sick-leave may not be transferred from one contract to another contract.

(e) An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

(f) An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.

(g) An employer must pay a worker sick pay on the worker's usual payday.

(h) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –

(i) absent from work for more than two consecutive days; or

(ii) absent from work on more than two occasions in any eight-week period.

(i) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

(j) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

SL 04.10 MATERNITY LEAVE

(a) A worker may take up to four consecutive months' unpaid maternity leave.

(b) A worker is not entitled to any payment or employment-related benefits during maternity leave.

(c) A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

(d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

(e) A worker may begin maternity leave –

(i) four weeks before the expected date of birth; or

(ii) on an earlier date –

(1) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or

(2) if agreed to between employer and worker; or

(iii) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

(f) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

(g) A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

SL 04.11 FAMILY RESPONSIBILITY LEAVE

(a) Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

(i) when the employee's child is born;

(ii) when the employee's child is sick;

(iii) in the event of the death of –

(1) the employee's spouse or life partner

(2) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling

SL 04.12 STATEMENT OF CONDITIONS

(a) An employer must give a worker a statement containing the following details at the start of employment –

(i) the employer's name and address and the name of the SPWP;

(ii) the tasks or job that the worker is to perform;

(iii) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;

(iv) the worker's rate of pay and how this is to be calculated;

(v) the training that the worker may be entitled to receive during the SPWP.

(b) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

(c) An employer must supply each worker with a copy of the relevant conditions of employment contained in this specification.

(d) An employer must enter into a formal contract of employment with each employee. A copy of a pro-forma is attached at the end of this specification.

SL 04.13 KEEPING RECORDS

(a) Every employer must keep a written record of at least the following –

(i) the worker's name and position;

(ii) in the case of a task-rated worker, the number of tasks completed by the worker;

(iii) in the case of a time-rated worker, the time worked by the worker;

(iv) payments made to each worker.

(b) The employer must keep this record for a period of at least three years after the completion of the SPWP.

SL 04.14 PAYMENT

(a) A task-rated worker will only be paid for tasks that have been completed.

(b) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer. Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

(c) A time-rated worker will be paid at the end of each month and payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

(d) Payment in cash or by cheque must take place –

(i) at the workplace or at a place agreed to by at least 75% of the workers; and

(ii) during the worker's working hours or within fifteen minutes of the start or finish of work;

(e) All payments must be enclosed in a sealed envelope which becomes the property of the worker.

(f) An employer must give a worker the following information in writing –

(i) the period for which payment is made;

(ii) the number of tasks completed or hours worked;

(iii) the worker's earnings;

(iv) any money deducted from the payment;

(v) the actual amount paid to the worker.

(g) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.

(h) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

SL 04.15 DEDUCTIONS

(a) An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

(b) An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

(c) An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

(d) An employer may not require or allow a worker to –

(i) repay any payment except an overpayment previously made by the employer by mistake;

(ii) state that the worker received a greater amount of money than the employer actually paid to the worker; or

(iii) pay the employer or any other person for having been employed.

SL 04.16 HEALTH AND SAFETY

(a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe and that all legal requirements regarding health and safety are strictly adhered to.

(b) A worker must:

(i) work in a way that does not endanger his/her health and safety or that of any other person;

(ii) obey any health and safety instruction;

(iii) obey all health and safety rules of the SPWP;

(iv) use any personal protective equipment or clothing issued by the employer;

(v) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

SL 04.17 COMPENSATION FOR INJURIES AND DISEASES

(a) It is the responsibility of employers to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

(b) A worker must report any work-related injury or occupational disease to their employer or manager.

(c) The employer must report the accident or disease to the Compensation Commissioner.

(d) An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

SL 04.18 TERMINATION

(a) The employer may terminate the employment of a worker provided he has a valid reason and after following existing termination procedures.

(b) A worker will not receive severance pay on termination.

(c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

(d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

(e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

SL 04.19 CERTIFICATE OF SERVICE

(a) On termination of employment, a worker is entitled to a certificate stating –

(i) the worker's full name;

(ii) the name and address of the employer;

(iii) the SPWP on which the worker worked;

(iv) the work performed by the worker;

(v) any training received by the worker as part of the SPWP;

(vi) the period for which the worker worked on the SPWP;

(vii) any other information agreed on by the employer and worker.

SL 05 EMPLOYER'S RESPONSIBILITIES

The employer shall adhere to the conditions of employment as stipulated in the *Code of Good Practice for Employment and Conditions of Work for Special Public Works Programmes*. Over and above the conditions stipulated above, he shall be responsible to:

(a) formulate and design a contract between himself/ herself and each of the recruited youth workers, ensuring that the contract does not contravene any of the Acts stipulated in South African Law, e.g. Basic Conditions of Employment Act, etc. (A copy of a pro-forma contract is attached at the end of this specification);

(b) ensure that the recruited youth workers are made available to receive basic life skills training which will be conducted and paid for by the appointed service provider;

(d) ensure that all youth workers receive instruction on safety on site prior to them commencing with work on site;

(e) ensure that all youth workers are covered under workmen's compensation for as long as they are contracted to the contractor. Payment to the Compensation Commissioner shall be the responsibility of the contractor;

(f) assist in the identification and assessment of potential youth workers to undergo advanced technical training in respective trades;

(g) test and implement strict quality control and to ensure that the health and safety regulations are adhered to;

(h) provide all youth workers with the necessary protective clothing as required by law for the specific trades that they are involved in.

(i) provide overall supervision and day-to-day management of youth workers and/or sub-contractors; and

(j) ensure that all youth workers are paid their wages on time through a pre-agreed payment method as stipulated in the contract with the youth worker.

SL 06 PLACEMENT OF RECRUITED YOUTH WORKERS

Employers will be contractually obliged to:

(a) employ youth workers from targeted social groups from the priority list provided by the Departmental National Youth Service (NYS) manager.

(b) facilitate on-the-job training and skills development programmes for the youth workers;

(c) achieve the following minimum employment targets:

(i) 100% people between the ages of 18 and 35

(ii) 60% women;

(iii) 2% people with disabilities.

(d) brief youth workers on the conditions of employment as specified in sub clause SL 04.09 above;

(e) enter into a contract with each youth worker, which contract will form part of the Employment Agreement;

(f) allow youth workers the opportunity to attend life skills training through DOL. This shall be arranged at the beginning of the contract;

(g) ensure that payments to youth workers are made as set out in sub clauses SL 04.14 and SL 04.15 above.

(h) set up of personal profile files as prescribed by the NYS Manager and as set out in sub clause SL 04.13 above.

(i) in addition to (h)
- a copy of the I.D;
- qualifications;
- career progress; e.g.
  - Status of technical improvement,
  - Willingness to work,
  - Leadership capabilities,
  - Discipline; and
  - Any other factors that can assist DPW-HR with the placement of the youth workers ant the end of the programme
- EPWP Employment Agreement, and

- list of small trade tools;

must be included in the youth worker's personal profile file.

SL 07 TRAINING OF YOUTH WORKERS

Three types of training are applicable, namely

- Life skills;
- On the job training
- Technical Skills training.

Training will be implemented by training instructors accredited by DOL and/or CETA:

- Youth workers shall be employed on the projects for an average of 6 months.
- Youth workers shall be deployed on projects in the vicinity of their homes. The same arrangements as for other workers regarding accommodation, subsistence and travel shall be applicable to youth workers.

(a) Life skills training

All youth workers are entitled to undergo life skills training. Training of this module will be flexible enough to meet the needs of the employer. Training should take place immediately after site hand-over and during the period of site establishment and pre-planning before actual construction starts, alternatively this will be spread over the duration of the contract period. The contractor will be required to work closely with the person to schedule the training sessions so that the timing of the training is aligned with the contractors work schedule and his demand for workers.

(b) On-the job training

The Employer shall provide youth workers with on-the-job training to enable them to fulfil their employment requirements. The employer shall also be expected to closely monitor the job performance of youth workers and shall identify potential youth workers for skills development programmes.

(c) Technical skills training

The Employer shall assist in identifying youth workers for further training. These youth workers will undergo further technical training to prepare them for opportunities as semi-skilled labourers.

Such training will comprise of an off-site theoretical component and practical training on-site. The contractor will be responsible for on-site practical work under

his supervision. Youth workers who graduate from the first phase of the training programme will be identified and given opportunities to register for skills development programmes. These can ultimately result in an accredited qualification. The programme will consist of theoretical instruction away from the construction site as well as on-site practical work under the supervision of the employer. Candidates will be entitled to employment to complete all training modules.

SL 08 BENEFICIARY (YOUTH WORKERS) SELECTION CRITERIA

SL 08.01 PREAMBLE

The *Code of Good Practise for Employment and Conditions of Work for Special Public Works Programmes* encourages:

- optimal use of locally-based labour in a Special Public Works Programme (SPWP);
- a focus on targeted groups which consist of namely youth, consisting of women, female-headed households, disabled and households coping with HIV/AIDS; and
- the empowerment of individuals and communities engaged in a SPWP through the provision of training.

SL 08.02 BENEFICIARY (YOUTH WORKERS) SELECTION CRITERIA

(a) The youth workers of the programmes should preferably be non-working individuals from the most vulnerable sections of disadvantaged communities who do not receive any social security pension income. The local community must, through all structures available, be informed of and consulted about the establishment of any EPWP – NYS

(b) In order to spread the benefit as broadly as possible in the community, a maximum of one person per household should be employed, taking local circumstances into account.

(c) Skilled artisans from other areas may be employed if they have skills that are required for a project and there are not enough persons in the local communities who have those skills or who could undergo appropriate skills training. However, this should not result in more than 20% of persons working on a programme not being from local communities.

(d) Programmes should set participation targets for employment with respect to youth, single male- and female-headed households, women, people with disabilities, households coping with HIV/AIDS, people who have never worked, and those in long-term unemployment.

(e) The proposed targets as set out in sub clause SL 06 (c)

- 100% youth from 18 to 35 years of age;
- 60% women;
- 2% disabled.

SL 09 CONTRACTUAL OBLIGATIONS IN RELATION TO YOUTH LABOUR

The youth workers to be employed in the programme (EPWP-NYS) shall be directly contracted to the employer. Over and above the construction and project management responsibilities, the employer will be expected to perform the tasks and responsibilities as set out in clause SL 05 above.

SL 10 RATES OF PAY

It is stipulated that youth workers on the EPWP-NYS receive a minimum of R2 200 per month (or R100 per day) whilst on the programme for both theoretical and on the job training.

SL 11 MEASUREMENTS AND PAYMENT

The number of youth workers specified for this contract that will receive orientation and technical training is 12

SL 11.01 TECHNICAL TRAINING CONDUCTED OFF SITE

SL 11.01.01 Skills development and technical training for youth workers for a period of 46 days per youth worker……**R192 000.00**…… Unit: worker-days

The unit of measurement shall be the number of youth workers replaced while in training multiplied by the number of days absent from the site.

The rates tendered shall include full compensation for additional replacement labour during periods of off-site training.

SL 11.02 EMPLOYMENT OF YOUTH WORKERS

SL 11.02.01 Employment of youth workers……**R224 400,00**……Unit: Prov.Sum

The unit of measurement shall be the number of youth workers at the labour rate of R2 156-00 per month (in compliance with the minimum wage of EPWP Ministerial Document as issued by the Department of Labour) multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of youth workers and for complying with the conditions of contract. The cost for the training shall be excluded from this item. This item is based on 6 months appointment for youth workers on site under the Contractor

SL 11.03 PROVISION OF EPWP DESIGNED OVERALLS, HARD HATS TO YOUTH WORKERS AS WELL AS ONE PAIR OF SAFETY BOOTS.

SL 11.03.01 Supply 1 x EPWP branded overalls and 1 x EPWP branded hard hat and 1 pair of safety boots to youth each youth worker ……**R11 200**… ……..…Unit: PC.Sum

Youth worker overalls should be orange (top and bottom) as per EPWP branding specification with the exception of Correctional Services contracts where the overalls should be blue (top and bottom). **A minimum of one set of overalls and 1 pair of safety boots per youth worker should be supplied**. Hard hats should be orange

and branded as per the EPWP branding specification which shall be provided to the Contractor.

SL 11.03.02 Profit and attendance…… Unit: %

An amount has been provided in the Schedule of Quantities under sub item SL 11.03.01 for the supply of EPWP designed overalls and hard hat, as per the EPWP branding specification provided by the EPWP unit. The Service Provider will have sole authority to spend the amounts or part thereof. The tendered percentage under sub items SL 11.03.01 will be paid to the contractor on the value of each payment pertaining to the supply of overalls and hard hats to cover his expenses in this regard.

SL 11.04 **PROVISION OF SMALL TOOLBOX FOR YOUTH WORKERS**

SL 11.04.01 Provide all youth workers with prescribed tools for their respective trades. Specification for the mentioned tools to be provided by the NYS Manager to the Contractor. These toolboxes will become the property of the youth workers after the completion of the programme… (**allowed R 1 500-00 / youth worker**) ……**R18 000**……..……Unit: PC.Sum

SL 11.04.02 Profit and attendance…… Unit: %

SL 11.05.01 Provision for medical fitness test for the learners before coming to site (allowed R630 / youth worker) ……..R7 560…….

SL 11.05.02 PROVISION FOR THE GRADUATION CEREMONY OF THE LEARNERS & EXTERNAL STAKEHOLDERS
(Allowed R13 500,00)

EPWP - NYS AGREEMENT
LIMITED DURATION CONTRACT OF EMPLOYMENT
[Example]
FOR
EXPANDED PUBLIC WORKS PROGRAMME
BETWEEN

Company Name: ……

(herein after referred to as the "**contractor**")

Company Address: ……

Contract Name: ……

AND

Surname and Name/s ……..

(hereinafter referred to as the "**Youth worker**")

Residential Address: ……..

ID number: ……..

1. The contractor hereby appoints the Youth worker in terms of a Limited Duration Contract, to work as a youth worker within a Special Public Works Programme (SPWP) Project.

2. This contract must be read in conjunction with the standard terms and conditions of employment applicable to a SPWP, a copy of which is attached.

3. The project where you will be employed is referred to as …….....
and is located at …….

4. The contract will start on ……and end on……..

5. You must be aware that **this contract is a Limited Duration Contract** and **not a permanent job.** Your minimum period of employment will be 6 months and the contract may be terminated for one of the following reasons:
   (a) Funding for the programme in your areas comes to an end.
   (b) You repeatedly do not perform in terms of the tasks set out in your work programme.
   (c) If you breach any of the terms and conditions of this contract.

6. You will be employed as a general worker within the contract, you may, depending on the contractor's operational needs, be required to perform other duties that can be reasonably expected of you.

7. You will adhere to the contractors' disciplinary code.

8. You will be required to work your daily hours from …….. to …….. which included your meal break.

9. While you are working you will report to ……

10. You will be paid an time-rate amount of R …… per hour.

11. The contractor shall not be required to provide to local workers:
    - holiday, leave, sick or severance pay;
    - a pension or similar scheme;
    - a medical aid or similar scheme.

12. Signed on this day …… of …….. 20……

Contractor: ……. Date: …….

Youth Worker: ……. Date: …….

Witness: ……. Date: …….

public works
& infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DECLARATION – EPWP PROGRAMME

I _____ from the Company

_____ .

Hereby Undertake To Comply To :

1. **LABOUR INTENSIVE CONSTRUCTION METHODS (LIC)**

   1.1 Comply To Implementation Of LIC BOQ Items Specified Elsewhere In The Tender Documents

2. **RECRUITMENT AND PLACEMENT OF EPWP NYS PARTICIPANTS**

   2.1 Recruitment, Placement And Exposure Training Of …N/A…….. (N/A) Participants

   2.2 Comply To EPWP BOQ, Specifications and Code Of Good Practice

3. **RECRUITMENT AND PLACEMENT OF LOCAL LABOURERS**

   3.1 Recruitment And Placement Of Twelve (12) Local Labourers

   3.2 Comply With Applicable Wage Order/ Determination or Agreement, In Terms of Labour Relations Act or Wage Act

4. **COMPLY TO EPWP MONTHLY REPORTING REQUIREMENTS**

   Monthly, Prepare And Submit Below EPWP Reports Attached To Monthly Payments Certificate :

   4.1 All Employees and EPWP Participants Contracts
   4.2 All Employees And EPWP Participants Certified SA ID Copies
   4.3 All Employees And EPWP Participants Attendance Registers
   4.4 All Employees and EPWP Participants Proof Of Payment
   4.5 EPWP Reports Populated On Standard Templates

5. **PENALTY FOR NON COMPLIANCE**

   Acknowledge Non Compliance Penalty Of R 3000- 00 (Three Thousands Rand) Per Month Per Participants

Signed by : _____
Director of the Company

Company name : _____

Date : _____

PW371-A: CONSTRUCTION WORKS: SPECIFICATION

PW 371-A

EDITION 2.0

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

CONSTRUCTION WORKS: SPECIFICATIONS

GENERAL SPECIFICATION

First Edition October 1983
Second Edition July 2013

General Specification

(read with PW371-B)

NOTE

This part is not to be altered without permission by the Department of Public Works.

TABLE OF CONTENTS

SANS NUMBERING IN CONSTRUCTION STANDARDS

SANS specification: *SANS* and number, e.g.
SANS 227 burnt clay masonry units.

SANS code of practice: 1 plus four digits, e.g.
SANS 10082 Timber buildings.

SANS BS standard: *SANS* and number, e.g.
SANS 6927 Building construction - Jointing products - Sealants - Vocabulary

SANS EN standard: 5 plus four digits, slash EN plus number, e.g.
SANS 50197-1 / EN 197-1 Cement Part 1: Composition, specifications and conformity criteria for common cements.

SANS ISO standard: *SANS* and number, slash ISO and number, e.g.
SANS 140 / ISO 140 Acoustics - Measurement of sound insulation in buildings.

SANS SM (standard method): *SANS* and 5 or 6 plus three digits, e.g.
SANS 5900 Warpage and squareness of refractory bricks.
SANS 6056 Sulphide content of water.

There is no longer a distinction between a specification, a code of practice, or a standard method; they are now all referred to as *standards*.

Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

Units, symbols, meaning of terms

Units of measurement, symbols

The units of measurement are metric units as standardised by the "Système International d'Unités" (SI). Note that the comma is the decimal indicator in Europe and South Africa, formally adopted by the *ISO* and the *IEC* as well, and that numerals are grouped into groups of three for readability, separated by a space, e.g. 1 233,55.

The following unit symbols (not abbreviations) are used in this document:

ºC	degrees Celsius	L	litre
g	gram	m	metre
H_z	Hertz	m^2	square metre
h	hour	m^3	cubic metre
d	day		
kN	kilonewton	mm	millimetre
kPa	kilopascal	MPa	megapascal
kW	kilowatt	t	tonne

Meaning of terms

The following terms, highlighted in *italics* in the text of this publication, are explained as follows:

AAAMSA

Association of Architectural Aluminium Manufacturers of South Africa

according to manufacturer's instructions

the manufacturer's instructions at the time of tender

applicable standard

a national or recognised standard applicable to the works, implying that the relevant standard is a contract document, a copy of which has to be kept in the site office for reference

ARP

a Recommended Practice prepared by *SSA*

as specified

as specified in the Particular Specification or in the drawings or in the scope of work

BS

British Standard

CKS

Coordinating Specification prepared by *SSA* , mainly for the procurement of products for the use of government departments

coastal region

area between the coastline and an imaginary line 30 km inland, including the entire area of jurisdiction of any local authority falling within this region

competent person

person who is qualified by virtue of his education, training, experience and contextual knowledge to make a determination regarding the performance of a building or part thereof in relation to a

functional regulation or to undertake such duties as may be assigned to him in terms of these regulations, as further defined in *SANS* 10400

comply

meet specified standards

drawings

the drawings forming part of the contract documents, and any modification thereof or additions thereto delivered to the contractor during the execution of the works

EN

European Norm

IEC

International Electrotechnical Commission

Invoked standard

standard that is called upon for guidance in the proper execution of the works on site, typically national codes of practice (*SANS* 10 000 series), not deemed a specification nor a contract document; *invoked* implies that the relevant standard be obtained and a copy kept in the site office for reference; whether a standard is to be invoked is a decision to be taken by the specifier, depending on size, complexity and importance of the works, and on the level of sophistication of the builder

ISO

universal short name of the International Organization for Standardization, a worldwide federation of national standards bodies of which South Africa, Botswana and Zimbabwe are members and Namibia, Angola, Zambia and Mozambique are correspondent members

MOD AASHTO

an internationally accepted test to determine the density of compacted material like soil filling, expressed as a percentage of the maximum compaction of the filling at various moisture contents as determined in a laboratory

NBR

National Building Regulations

NRS

Rationalized User Specification prepared by *SSA*

PIESA

Power Institute of East and Southern Africa

SABS

South African Bureau of Standards

SANS

South African National Standard

specification data

data required by *SANS* 2001 Construction Works standards without which the specification is incomplete*. Specification data* listed in PW371 is simplified and generally accepts default values or requirements – consult Annex A of the relevant SANS 2001 standard for the complete list

NOTE: Data required by *SANS* materials and product standards, listed in Annex A of each standard as “Notes to Purchasers”, are deemed *specification data* in both parts of PW371.

SSA

Standards South Africa, a division of the SABS

suitable

capable of fulfilling or having fulfilled the intended function, or fit for its intended purpose

VC

Compulsory Specification (technical regulation) prepared by *SS.*

1 Earthworks

1.1 Site clearance

Applicable standard: SANS 2001-Construction Works Part BS1: Site clearance.

1.2 Earthworks (general)

Applicable standard: SANS 2001-Construction works Part BE1: Earthworks (general).

2 Concrete works

2.1 Structural works

Applicable standard: SANS 2001-Construction works Part CC1: Concrete Works (structural).

2.2 Minor works

Applicable standard: SANS 2001-Construction Works Part CC2: Concrete Works (minor works).

2.3 Foundations

Applicable standard: SANS 2001-Construction Works Part CM2: Strip Footings, Pad footings and Slab-on-the-ground Foundations for Masonry Walling.

2.4 Concrete floors and paving on the ground

Invoked standard when required*: SANS* 10109 Concrete Floors

a) floor: direct-finished one course slab as specified below, or as designed and constructed to *SANS* 10109 under direction of a *competent person* (civil engineering) when specified

damp-proof under-surface membrane

b) material: polyolefin: *SANS* 952 type C: 0,25 mm thick
c) cutting: straight and square or to shape; use sharp instruments
d) joints: minimum, lapped and sealed with pressure sensitive tape.

fabric reinforcement

e) welded steel fabric: *SANS* 1024
f) in large mats, overlap 300 mm, place near top surface
g) do not cross over construction or day joints.

preparation

h) prepare thresholds before casting floor by casting concrete of same thickness, material and finish as specified for floor, in all door openings; thresholds to have keyways
i) prepare for contraction, construction and isolation joints; in case of columns, place edge forms diagonally to column
j) lay damp-proof membrane with sheet overlaps of 200 mm over entire floor area

placing

k) place, compact, level, strike off, and wood float concrete floors to thickness, level, and/or gradient as specified

finishing

l) direct-finish by means of delayed trowelling technique:
   - leave surface undisturbed until bleeding has ceased and surface has stiffened so that foot pressure barely indents the surface (2 – 4 hours)
   - remove bleed water and laitance
   - hand trowel using pressure, or power trowel
   - steel trowel to produce a smooth finish, or wood float to produce a slip-free surface
   - do not add water or neat cement.

Joints

Contraction joints:

m) spacing and pattern: <4,5m in both directions

n) saw joints with a mechanical concrete saw to blade width and a depth of one quarter of the slab thickness
o) saw only after concrete has hardened sufficiently but before shrinkage cracking can occur (between 4 and 48 hours after placement depending on temperature).

Construction or day joints:

p) cast at end of day's casting or where concreting has stopped for more than 45 minutes
q) type: keyed, keyed-and-tied, dowelled, or reinforced butt joints as directed, or as specified
r) keyways: trapezoidal or rounded; coat joint face of keyways with suitable debonding agent like lime wash or bitumen
s) dowels: 16 mm diameter x 300 mm length plain round mild steel dowels to *SANS* 920, placed at mid-depth of the slab at 300 mm spacing; coat dowels for two-thirds of their length with a bond-breaking compound
t) round off all construction joint edges to a radius of 3 mm.

Isolation or movement joints:

u) position: where floors abut fixed structures like walls, columns, sumps or inspection chambers, or in external floors or paving at spacing <4,5 m in both directions
v) forming: 20 mm thick compressible material like polystyrene
w) sealing: leave joints open or seal as specified; seal with suitable elastomeric material; ream sawn joints to width and depth as required and *according to the* sealant *manufacturer's instructions.*

2.5 Strongrooms

Strongrooms: *SANS* 10052, of fire rating, burglar resistance and wall thickness class as specified

3 Masonry

3.1 Masonry walling

Applicable standard: SANS 2001-Construction Works Part CM1: Masonry Walling
Specification data:

burnt clay masonry units

a) burnt clay masonry units: *SANS* 227
   - class of common units: NFP for general masonry above damp-proof level to be plastered; NFX for masonry exposed to damp or in contact with the ground (e.g. foundation walls, manholes), or for fair face work
   - nominal dimensions: 222 x 103 x 76 mm, or as specified
   - nominal compressive strength: to table 1 of *SANS* 2001-Construction Works Part CM1
   - uniformity of colour and texture of face units: provide sample of 20 units
   - grade of efflorescence: normal for internal walls not exposed to damp; special for visible unplastered foundation walls, retaining walls and free-standing walls
   - limits of water absorption: 6—14%
   - limits of moisture expansion: 0,20%
   - required marking: designation on each dispatch or consignment note

concrete masonry units

b) concrete masonry units: *SANS* 1215
   - nominal compressive strength: *SANS* 2001-Construction Works Part CM1 table 1
   - average drying shrinkage: normal (0,06%)
   - required marking: designation on each dispatch or consignment note

mortar

c) sand: to *SANS* 1090 when specified

reinforcement

d) brick reinforcement in corrosive areas:
   - in coastal regions: galvanized to SANS 935 or 121, or stainless steel
   - in tidal splash zones: stainless steel
   - non-metallic ties (engineered polymer) may be used instead of stainless steel
e) metal tie type: butterfly or modified PWD

work

f) single leaf bond: stretcher
g) multi leaf bond: stretcher and brickforce, or as specified
h) reference panel: required
i) position of control and articulation joints: as specified
j) degree of accuracy: II

additional requirements

k) wall ties in partial fill insulated cavity walls
   - to have drip in centre of residual cavity
   - tie spacing: SANS 10164 (2,5/m^2 or 600 mm vertical, 660 mm horizontal, staggered)
   - tie spacing around openings and construction joints: <300 mm vertical
l) tie mortar cover: 15 mm minimum to outside face of mortar joint

m) ancillary fabricated components for masonry, e.g. ties, brackets, lintels, shelves, anchors, meshwork: galvanized to SANS 121 in coastal regions
n) clay facing units: obtain from manufacturer/supplier agreement on the following in writing:
   - the required application e.g. type of building, finish etc.
   - the degree of exposure to weather conditions, proximity to the sea etc.
   - track record of the preferred brick in the area of the building
   - an undertaking or warranty that the bricks delivered will be *suitable*
   - colour expectations in the case of face bricks
   - acceptable levels of breakage during delivery to site
o) common solid masonry mortar joints:
   - rake out for receiving plaster
   - flush off where walls are to be bagged or fair-faced
p) hollow masonry mortar joints:
   - do not rake out for receiving plaster.

3.2 Glass blockwork

materials

a) glass blocks: BS EN 1051
b) mortar: class II

laying

c) bond: straight horizontal and vertical joints
d) coat surface on which first course is laid with bitumen emulsion or similar material to permit movement of blocks
e) reinforce every fifth horizontal joint, and vertical joints at 1 m maximum centres, with 25—65 mm wide corrosion resistant metal strips or mesh, nailed to the adjacent walls or columns, or with 6 mm diameter hot dip galvanized reinforcing rod drilled 50 mm deep into surrounding structure
f) allow 15 mm clear space at sides and top of glass block panel; fill front of space with polyurethane backing strip and silicone sealant
g) joints: 10 mm, strike back and smooth
h) use a waterproof grout if wall is exposed to rain.

3.3 Stone masonry

3.3.1 Rubble

a) natural stone: local koppieklip
b) size: between 150 and 600 mm in section
c) mortar: class III
d) lay stones on their natural quarry beds
e) joints: 25 – 50 mm wide cement mortar class II, finished 25 mm deep square recessed
f) bond: mainly large stones to homogeneous random pattern
g) level up tops of walls with selected long and flat stones; keep wall faces even
h) use through stones every 1 m² in double-faced walls
i) ties: build in wire ties at 3 per m^2 where rubble walls are to be joined to brick-, block-, or concrete work
j) reference panel: required

3.3.2 Dimension stone

a) natural stone with high compressive strength and good durability, sourced from an acceptable local quarry
b) pointing: rake out exposed joints 12 mm deep and fill with *suitable* grout
c) clean down, cover up to prevent soiling during progress of remaining work, remove covering upon completion and clean down again
d) reference panel: required.

3.4 Masonry-type facings

a) waterproofing: coat wall face with bituminous compound before covering with facings
b) matching when relevant: lay out slabs of natural stone to match veining, colour and texture, number each slab and fix in same relative position
c) attachment devices: 20 x 3 mm L-shaped stainless steel bonding lugs shot-nailed to background at 1 m intervals and staggered
d) support shelf: 100 x 100 x 8 hot dip galvanized steel continuous angle bolted to structure with 30 x 6 flat steel hangers at 1,5 m intervals
e) grouting, fixing of cramps, engaging cramps in dovetailed metal channels secured to backing with through-bolts or cramps, adjustment in cramps, attachment of lintels and soffits, alignment of joints and facings: *SANS* 10073
f) clean down, cover up to prevent soiling during progress of remaining work, remove covering upon completion and clean down again
g) joints: 3 mm wide between panels, sealed with suitable sealant of acceptable colour – see section 7.

4 Structural timberwork

4.1 Structural timberwork (flooring)

Applicable standard: SANS 2001- Construction Works Part CT1: Structural Timberwork (flooring).

additional requirements

a) exposed faces of sawn timber: planed, sandpapered, and arris rounded to 3 mm radius.

4.2 Structural timberwork (roofing)

Applicable standard: SANS 2001-Construction Works Part CT2: Structural Timberwork (roofing).

Specification data:

a) pole preservation treatment marking: metal identification tag with hazard class on each pole.
b) discontinue timber members on both sides of fire walls.

4.3 Structural laminated timber

a) structural laminated timber: *SANS* 1460
b) required marking on each piece: application, exposure class, type, appearance and finish, stress grade, e.g. S2GP5.

4.4 Timber buildings

Timber buildings: *SANS* 10082.

5 Structural steelwork

5.1 Structural steelwork

Applicable standard: SANS 2001-Construction Works Part CS1: Structural Steelwork
Specification data:

additional items

a) hot dip galvanized fasteners (M8–M64): *SANS* 10684

variations

b) temporary fittings and holes for lifting: to be removed or filled up where visible after installation
c) cut edges: grind smooth and straight where prominent or as indicated.

5.2 Sundry steelwork

5.2.1 material

a) structural steel tubes: *SANS* 657 part 1, and mark-bearing
b) steel tubes for furniture *SANS* 657 part 4, and mark-bearing
c) steel wire rope (cables) *SANS* 2408
d) shackles: *SANS* 2415
e) thimbles: *SANS* 2262.

5.2.2 welding

a) all visible welds: continuous, grind smooth
b) dress all cut edges and holes to remove dross, burrs and irregularities.

5.3 Coating

a) preparation of steel surfaces: *SANS* 10064

hot dip galvanizing

b) hot dip galvanized coatings on prefabricated iron and steel products: *SANS* 121 / ISO1461
   - steel composition: for industrial/mining purposes: Si 0,125 — 0,30% with P < 0,02%; for architectural purposes: Si 0,03 with P < 0,01% or Si 0,15 —0,25% with P < 0,02%

c) do not bend or form articles after hot dip galvanizing

paint or varnish

d) corrosion protection of structural steel of not less than 3 mm thickness by paint or varnish *SANS* 12944
   - source all paint from one manufacturer
   - paint system testing: laboratory tests to *SANS* 12944-6
   - discuss surface smoothness with all parties before commencing painting.

5.4 Fire protection

Protect structural steel against fire to comply with the required fire resistance as set out in *SANS* 10400-T table 17, as specified

5.5 Light steel frame building

Light steel frame building: *SANS* 517.

6 Insulation, sealants, seals

6.1 Thermal insulation

6.1.1 Materials

a) required R-value/thickness: SANS 204
b) fire performance classification of thermally insulated building envelope systems: *SANS* 428

rigid board

c) expanded polystyrene (EPS) board: *SANS* 1508, type regular when covered, flame retardent when exposed
d) extruded polystyrene (XPS) board, density 32kg/m³, compressive strength 160–310 kPa depending on thickness
e) expanded polyurethane (EPU) board: *SANS* 1383

fibre mats or batts

f) fibrous thermal insulation mats or batts: *SANS* 1381-1

reflective foil

g) reflective foil: *SANS* 1381-4

metal faced insulation panels

h) metal faced panels bonded to an insulation core: *SANS* 1530 and mark-bearing

loose fill

i) loose fill (pellets/granules): *SANS* 1381-2
j) cellulose loose fill (wood based): *SANS* 1381-6

pipe insulation

k) bonded preformed mineral fibre pipe sections: *SANS* 1445-3, mark-bearing with expected maximum service temperature and exposure conditions; provide an adequate vapour barrier to pipe sections intended for use in temperatures below ambient.

6.1.2 Installation

masonry cavity wall insulation

a) to form a neatly arranged, continuous and uniform thermal barrier, continuous with roof/ceiling insulation
b) handle boards with care; cut with a sharp knife or fine-tooth saw
c) install in heights to fit between wall ties – do not prick over ties
d) stagger vertical joints
e) rigid board horizontal joints: square in full-fill cavity construction, shiplapped or tongue and grooved in partial fill construction
f) full fill cavity construction:
   - cavity width: equal to required insulation thickness
   - fill with rigid insulation board or fibre batts
g) partial fill cavity construction:
   - fill with rigid insulation board only
   - hold insulation tightly against outer face of inner leaf with suitable retaining discs or extra wire ties
   - maintain a residual cavity of >35 mm to permit moisture drainage
h) loose fill:

- fill existing wall cavities by pumping/blowing loose fill insulation through holes drilled in outer leaf, by specialist installer; refill holes after completion to match surrounding brickwork

i) butt insulation tight against window/door frames

masonry wall external face insulation

j) patent system of EPS external insulation bonded and mechanically fixed to dry, sound and flat surface, finished with reinforced polymeric plaster, or as specified

k) by registered specialist strictly to supplier instructions

non-masonry wall insulation

l) to *SANS* 204

pitched roof/ceiling insulation

m) reflective foil under roof covering: with air space of >25 mm between foil and solid surfaces and with reflective surface facing down

n) bulk insulation: cut neatly to fit snugly between rafters

o) keep bulk insulation clear of incandescent and halogen downlighters/transformers

p) observe electrical and other safety issues, e.g. defect wiring, adequate lighting for workmen

flat roof insulation

q) material: rigid EPS insulation density 32D

floor insulation

r) under floor slab insulation (in case of in-slab heating as required by SANS 204): required when specified

pipe insulation

s) cover insulation exposed to weather and sunlight with protective material as recommended by insulation manufacturer/supplier

t) tightly mitre bends and tees.

6.2 Vapour barriers

a) type and position as specified.

6.3 Sound absorption

installation

a) to a rational design

b) airborne sound absorption:

- fix battens to wall
- fill space between battens with mineral fibre mats
- fix perforated board / spaced hardwood slats to battens

6.4 Joint fillers/sealants

6.4.1 Materials

a) building construction jointing and sealant products vocabulary: SANS 6927

b) compatible with surfaces and materials they come into contact with; do not use material containing bitumen or volatile material with thermosetting chemically curing sealants.

c) life expectancy: >30 years

d) use fungus-proof sealant in all wet areas, e.g. between ceramic wall tiles and kitchen cupboards, baths, wash-basins and shower floors

e) two-part gun grade polysulphide sealants: *SANS* 110
f) one part low modulus silicone rubber sealant: *SANS* 1305, type 1 for building joints
g) one part high modulus fungus proof silicone rubber sealant: *SANS* 1305, type 2 for glazing and sanitary ware
h) two-part polurethane base sealant: *SANS* 1077, type 1 pouring grade, self-levelling
i) two-part polurethane base sealant: *SANS* 1077, type 2 gun grade, non sag
j) preformed elastomeric compression joint seals: *SANS* 1023 type 1
k) rubber or flexible PVC waterstop seals in construction and expansion joints in concrete structures where movements of up to 15 mm is expected: *CKS* 388/389, of type, dimension and workmanship as specified in these standards
l) backing: closed-cell expanded polyethylene cord or strip.

6.4.2 Installation

preparation

a) joints: clean and dry
b) insert backing strip to ensure correct sealant thickness
c) apply correct primer to sides of joints
d) apply bond-breaking material where required
e) edges: mask to ensure neat and clean edges

sealing

f) according to manufacturer's instructions
g) fill foremost part of movement joints to thickness not less than half the width of the joint
h) seal joints around door and window frames, movement joints, joints between walls and columns, floor joints, and other joints where sealing is indicated or to the requirements of *SANS* 204
i) finish: neatly and smoothly to acceptable profile.

6.5 Architectural seals

a) compatible with door/window construction and other hardware
b) not to impede normal use of door/window

materials

c) fasteners: as supplied with product, colour matched where visible
d) seals: replaceable; replacement seals to be available

installation

e) according to manufacturer's instructions.

7 Roof covering, cladding

7.1 General

underlay

a) reflective foil laminate: *SANS* 1381-4 class B (reinforced, one surface reflective), and mark-bearing
b) polyolefin undertile membrane: *SANS* 952 type E, 0,25 mm, and mark-bearing
c) installation: according to manufacturer's instructions.

7.2 Tile roofing/cladding

7.2.1 Materials

a) concrete roof tiles and accessories: *SANS* 542 and mark-bearing
b) clay roof tiles: *SANS* 632 and mark-bearing
c) natural slate tiles: from a *suitable* quarry, with two holes per tile, drilled (not punched)
d) fibre cement slates: *SANS* 803, and mark-bearing
e) metal roofing tiles: *SANS* 1022, and mark-bearing
f) accessories: to match roofing material, as supplied by manufacturer/supplier
g) fixing materials: hot dip galvanized steel *SANS* 121 in inland regions, or stainless steel grade 304 in *coastal regions* or corrosive atmospheres, except for clay tiles where all fixings shall be stainless steel
   - length of nails: to penetrate battens to a minimum depth of 25mm
   - steel wire: 1,6 mm diameter, galvanized
h) mortar for bedding and pointing: 3 sand to 1 cement, pigmented to match tiles.

7.2.2 Roof tiling

Invoked standard when required*: SANS* 10062 Fixing of Interlocking Roof Tiles
Invoked standard when required: Concrete Roof Tiles – Technical Manual, published by the Concrete Manufacturer's Association (CMA)

preparation

a) install gutter brackets, metal valley linings before tiling

laying

b) according to manufacturer's instructions
c) abutments and verges: half tiles in case of interlocking tiles, tile-and-a-half tiles in case of plain tiles/slates
d) hips and valleys: cut and dress tiles/slates to neat line, overhanging valley gutters by 50 mm, unless specified as butt joined to conceal the valley gutter
e) roof overhang into gutter: 50 mm measured from eaves to inside edge of gutter
f) avoid contact of metal roofing tiles with other metals, cement products or treated timber

roof underlay

g) lay reflective foil underlay with reflective surface facing downwards
h) lay underlay across rafters/beams, stretch to a sag of ±40 mm and nail down with battens/purlins or with hot dip galvanized clout nails, or *according to manufacturer's instructions*
i) work from eaves upwards with 150 mm minimum overlap; join lengths of underlay at their ends over one rafter space

j) extend underlay 20mm over tilting batten or fascia board or, in open eaves, over beam-filling on exterior wall; cut neatly around chimneys, pipes, cables etc.
k) take underlay over ridges and lap underlay on opposite side by 200 mm
l) valley and hip underlay: lay strip of underlay along full length, beneath the main underlay in the case of valleys, over main underlay in the case of hips, and nailed to valley/hip counterbattens
m) seal all lap joints.

7.3 Profiled sheet roofing/cladding

Applicable standard: *SANS* 1200-HB Cladding and sheeting
Applicable standard: SANS 10237 Roof and side cladding

7.3.1 Metal sheet

profile

a) corrugated: 17,5 mm deep, 76 mm pitch, exposed fixing

b) box rib (IBR) 36 mm deep, 172 mm pitch, exposed fixing

c) interlocking box rib: >40 mm deep, <180 mm rib centres with beading rolled into trough bottom, concealed fixing, or the subject of an active Agrément Certificate

d) rib-trough/standing seam: >32 deep, 250 mm seam centres, with beading rolled into trough bottom, concealed fixing, or

e) the subject of an active Agrément Certificate

steel

f) hot dip zinc coated coil sheeting: *SANS* 3575, coating grade Z275 for rural and urban inland regions or Z600 for *coastal regions* or aggressive atmospheric conditions
g) Aluminium/zinc alloy coated sheet: *SANS* 9364/*SANS* 14788, coating grade AZ150 for rural and inland regions or AZ200 for *coastal region* or aggressive atmospheric conditions
h) wet-storage stain prevention of zinc-coating (white rust): oil protection required; report wet-storage stain and do not fix until inspected and/or treated
i) required coating marking: thickness, material quality and coating thickness on the reverse side of each sheet at 1 m intervals

aluminium alloy

j) natural mill finish aluminium alloy: *SANS* 903 type 3004- temper H14 or alloy A1-Mn1 or A1-Mg2
k) required marking: thickness on each sheet

stainless steel

l) stainless steel: grade 304

prepainted metal

m) prepainted metal sheet: *SANS* 1845
n) required prepainting marking: at 1m intervals on underside of sheet, or on delivery slip: trade name, type

7.3.2 Fibre-cement sheet

a) fibre-cement sheet: *SANS* 685/9933
b) thickness: 5 mm
c) profile: corrugated 57 mm deep, 178 mm pitch (Big-six)

7.3.3 Glass-reinforced polyester sheet

a) glass-reinforced polyester sheet: *SANS* 1150
b) required marking: trade name, type, class, light-transmission grading, mass, weather side in case of type 1, on each sheet.

7.3.4 Polycarbonate sheet

a) grade: sheeting grade with a co-extruded layer of UV stabilised polymer on the weathering side

7.3.5 Fasteners and washers

a) fasteners and washers: *SANS* 1273.

7.3.6 Installation

Invoked standard when required: *SANS* 10237 Roof and Side Cladding
a) installation: *according to manufacturer's instructions* or to an active Agrément certificate

preparation

b) ensure that
- roof and or wall structure is aligned and grouted
- roof pitch is as required
- purlins are spaced correctly
- framework is quare
- face of framework is free of protrusions
- adjacent building work is complete, including gutters and painting

fixing in general

c) cold cut in preference to abrasive disc cutting; remove swarf without damaging coating

exposed fixing

d) holes in sheets: drilled, not punched
e) hole size: oversize to accommodate thermal movement, especially in the case of polymer sheeting
f) corrugated metal sheets: on crests of all outermost and middle corrugations, at overhangs and at end laps on every second crest
g) box ribbed sheets: on crest of every second and fourth rib, with side laps stitched at 900 mm centres with 6 mm diameter self-tapping screws
h) fibre-cement roof or cladding: 7 mm diameter hot dip galvanized drive screws to wood purlins, 8 mm diameter hot dip galvanized hook bolts to steel angle purlins
i) all screws and bolts provided with bituminous or plastic washers with hot dip galvanized steel cups

concealed fixing

j) patent fixing with concealed clips supplied by roof sheet manufacturer, nailed or screwed to purlins
k) allow for expansion and contraction of the sheet without straining the securing points
l) holes in sheets: prohibited

m) button punching, if required by manufacturer: through interlocking ribs at 150 mm either side of fixing clip and at mid-span between purlins

lapping

n) end laps: *SANS* 10400-L Table 1
o) side laps: one and a half corrugations or one rib
p) seal side and end laps to prevent air infiltration and leakage
q) fixing order: opposite to the direction of prevailing rain-bringing wind
r) end laps in case of translucent sheets: >200 mm
s) glass-reinforced polyester or polycarbonate sheets laid single width between metal sheets of similar profile may be supported on same purlins as metal sheet; in case of two or more sheets laid side-by-side: support roof sheets at <0,8 m, side cladding at <1,5 m, or *according to manufacturer's instructions*

trough ends on metal trough roofs with slopes less than15º

t) bend down trough ends 15 mm at eaves to form drip; bend up trough ends 30 mm at high ends to form stop-end
u) bend with *suitable* tool (not hammer) without tearing the sheet.

7.3.7 Miscelaneous

a) finish roof with necessary ridging, closers, upturns, downturns, drips and capillary interstices to provide a watertight and vermin and insect proof construction
b) of similar material and fasteners as roofing

ridging

c) for corrugated metal roof sheeting: 460 mm girth with roll-top, lapped 225 mm at heading joints and beaten into corrugations; close roll-top at bottom of hips and at gable ends
d) for box-rib roof sheeting (lapped or interlock) and for standing seam roofing to fall >7°: 430 mm girth without roll-top, lapped 225 mm at heading joints and provided with serrated closers
e) for standing seam roofing to fall <7°: saw or snip top 12 mm of seams and bend single-length sheet over ridge; cover cuts with rib caps set in *suitable* sealant
f) for fibre-cement roofing: fibre cement corrugated or plain adjustable or fixed ridges; fill corrugations under plain wings of fibre-cement ridging with 1:5 cement:sand mortar

movement joints

g) arrange sheets or cover strips, or both, over expansion joints in order that watertightness is ensured under all conditions and that joints are free to move

tolerances

h) alignment of purlins and girts: mismatch between abutting ends <3 mm in any direction
i) misalignment of side joints and end joints over the whole of the finished face of the sheeting and cladding, and any misalignment of the edges of fascias, ridging, etc.: <3 mm
j) contact faces between purlin or girt and sheeting or cladding: in the same plane or, in the case of curved sheeting and cladding, in a tangential plane.

7.4 Fully-supported metal sheet roofing and cladding

material

a) copper roofing sheet: 0,6 mm x 600 mm wide high purity cold rolled copper *SANS* 404/405
b) boarding: 20/22 mm thick solid tongue-and-groove softwood to *SANS* 629 of genus Pinus, flooring grade, light density group, non-endmatch
c) roofing felt: range 111 containing 80 % wool, density 333 g/m^2
d) fixing clips: 0,6 mm x 40 mm wide copper

e) clout nails: hard drawn copper wire 2,8 mm diameter x 22 mm with barbed shank
f) screws: brass, flat head

laying

g) screw softwood boarding onto battens with counter-sunk brass screws
h) nail roofing felt with butt joints onto boarding with copper clout nails
i) lay copper sheet with both edges bent up 90 degrees to form troughs 510 mm wide
j) form double welted standing seams in direction of fall
k) fold into seams clips at 300 mm centres formed of same material and nailed to boarding with copper clout-head nails
l) lay 100—120 mm wide sheet at eaves, nail to boarding with copper nails and bend down with roof covering to form drip
m) bend sheet up at parapet walls, ventilation pipes and chimneys and counter flash with copper set in silicon sealer
n) form gutters and spouts from copper sheet of 0,6 mm thickness; provide movement joints in gutters every 10 m
o) fix all copper securely but do not restrict thermal movement; finish nails and screws flush when covered by copper.

7.5 Thatch roofing

a) thickness and minimum mass of thatching: *SANS* 10400-L
b) lightning protection: required (See Electrical Work).

7.6 Flashings

material

a) flashings and counter-flashings: metal; reinforced liquid membrane is prohibited
b) fibre-cement roofs: 6 mm fibre-cement apron flashing finished off with metal counter-flashing against walls, or sill or U-flashing where required in vertical cladding, all *according to manufacturers instructions*
c) tiled roofs: steel sheet hot dip galvanized class Z275 for inland regions, or class Z600 or copper for coastal/corrosive regions, thickness 0,6 mm
d) sheet metal roofs: material similar to roofing sheets
e) side-wall flashings: >75 mm high, >200 mm wide or to cover > two ribs of profiled metal sheeting
f) head-wall flashings: purpose made flashings incorporating serrated closers and poly closers to suit metal roof profile where required, manufactured to roof angle - do not bend on site
g) counterflashings: >150 mm high, with anti-capillary fold
h) end laps: >150 mm for flashing; >75 mm for counter flashings
i) flashing nails: same material as flashing
j) flashings for pipes >50 mm diameter: tapered sheet metal collar of diameter to fit around pipe, soldered or sealed to holed flange at same angle as pitch of roof
k) flashings for pipes <50 mm diameter: tapered sheet metal collar only

fixing

l) cut, join, lap and form sheet metal flashings, concealed gutters and valleys to roof and vertical surfaces and around protruding pipes to make a watertight finish
m) fix flashings to walls with 75 mm long flashing nails with a 20 mm hook
   - at ends and at 400 mm centres in between
   - drive flashing nail into wall above line of flashing turn-up, and use hook of flashing nail to keep flashing in position – do not drive nail through flashing
n) fix flashings to roof sheets at <600 mm centres or on each alternate rib

o) lay undertile flashings under roof tiles on battens at gable, parapet or chimney walls, to discharge onto roof covering or into eaves gutters

p) chimney gutters on high side of chimney: support gutters on *suitable* boarding; turn up 100 mm against chimneys and > 225 mm up the roof slope; lap chimney gutters onto side flashings or undertile flashings

q) fix counter-flashings in 25 mm deep formed joints in masonry or pre-formed into concrete, keep in place with short rolls of cut-off sheet metal, and fill joint solid with 1:3 cement:sand mortar; do not puncture counter-flashings

r) pipe flashing >50 mm diameter: fix flange to roof sheet by means of roof screws similar to those used to fix the roof sheets, or by means of pop rivets; pipe flashings <50 mm: solder collar to roof sheet; seal collars around pipe with *suitable* clamp and sealant

s) valley linings:
- ridging turned around, without roll for steep slopes, or with roll for low slopes
- lap valley linings 225 mm minimum
- discharge valley linings into eaves gutters
- fold back valley lining sides to form open bead in the case of slate and tile covered roofs

t) exposed verges of corrugated steel roofs: finish with roll flashing.

7.7 Fascias and barge boards

fibre-cement

a) fibre-cement sheets: *SANS* 803

fixing

b) drill, countersink and screw sheets at 750 mm maximum centres with 5 x 50 mm sherardized screws

c) screw fascias and barge boards to purlins, tilting battens or verge battens, and into ends of roof beams; in case of purlins, build stub beams into gable walls between purlins to carry verge battens

d) cover joints of boards with 50 mm girth x 0,5 mm thick H-profile galvanized sheet metal cover strips.

8 Waterproofing

Invoked standard when required*: SANS* 10021 The waterproofing of buildings.
Invoked standard when required*: SANS* 952 annex C: Notes on use, installation and protection of film (supplement to *SANS* 10021).

8.1 Materials

reinforced bitumen membrane (RBM)

a) flexible polyester and/or fibreglass reinforced APP polymer modified bitumen membrane: BS EN 13707 or the subject of an active Agrément certificate
b) anti-root: in all planted areas
c) bonding: heat-fused on primed surfaces

self-adhesive plastic membrane (APM)

d) flexible polyethylene or polypropylene film backed SBS modified asphalt/bitumen adhesive compound: BS EN 13967 or the subject of an active Agrément certificate
e) bonding: cold applied on primed surfaces

reinforced liquid membrane (RLM)

f) of light colour
g) reinforcement: non-woven needle-punched polyester or polypropylene fibre fabric with a mass of 125—150 g/m^2 for roofs and 95–100 g/m^2 for parapet walls

slip/protection layer

h) bituminous felt: *SANS* 92 or 0,25 mm HDPE sheeting: *SANS* 952 type D

geomembranes

i) thermoplastic sheeting: *SANS* 1526

cavity drainage membrane

j) patent 0,5 mm thick polypropylene or HDPE sheet with studs 5–8 mm high at close centres to an active Agrément certificate

outlets

k) roof outlets: patent cast iron flanged fullbore outlets with removable dome gratings, epoxy finish
l) small balcony outlets: straight lengths of PVC pipe with chamfered ends and flanged inlets to accommodate waterproofing dressing without loss of bore or adherence
m) shower outlets: special flanged shower outlet with trap and grating.

8.2 Preparation

substrate surfaces

a) free of traffic and protrusions
b) clean, smooth but not polished, even, stable and surface dry
c) cracks in cementitious surfaces up to 0,3 mm are acceptable
d) plywood: exposure class 1 (marine), with open butt joints
e) sand-cement screeds: minimum 35 mm thick when laid directly onto concrete; minimum 50 mm thick when laid on insulation boards or slip/protection layers; 20 mm minimum as top layer on foamed-cement screeds

falls

f) roofs: minimum actual fall including valleys: 1:80; maximum fall without precautions, including gravel protection: 10°

corners

g) pencil rounded

parapet walls

h) except when covered with copings with overhang, ensure tops of parapet walls slope towards roof

upstands

i) ensure upstand beams >170 mm above waterproofed surface are provided on both sides of movement joints and at intersections with masonry walling

drips/downstands

j) ensure drips are provided in roof slab soffits at edge of overhangs by means of ≥12 mm deep grooves or downstands

k) in winter rainfall areas where roof slab edge is flush with external face of masonry cavity wall, ensure a continuous PVC angle drip is provided against soffit of concrete slab, centred on wall cavity

movement joints

l) prepared to suit membrane system

balconies

m) ensure balconies are at a sufficiently lower level than door thresholds to allow for screed/ topping, when required, and have sufficient fall to outlet(s)

n) ensure internal floor finish stops against continuous metal edge strip fixed onto concrete floor in line with inside face of door frame

o) do not fix door frames, balustrades or handrails before thresholds and upstands are waterproofed

dpc's

p) ensure dpc's in walls are at the termination level of waterproofing turn-ups or above the level of trafficable surface finishes

services

q) plant, equipment, planter boxes, water features, benches etc. on roofs and balconies: install only on separate bases on completed roof waterproofing; ensure these bases do not obstruct flow of water to outlets

r) pipes and conduits penetrating waterproofing: avoid, place in ducts; if unavoidable, do not cluster, ensure pipe(s) protrudes at 90° for > 200 mm before changing direction; provide pipes with stiff flanges screwed or bolted to substrate

outlets

s) in position before commencing waterproofing

t) set lower than their surroundings to prevent ponding

u) roof outlets: set >200 mm away from upstands.

8.3 Application

a) apply waterproofing system *according to manufacturer's instructions*, including priming procedures, to leave roof, internal wet areas like showers and plant rooms, and below-ground structures in a watertight condition
b) slip/protection layers, blinding layers, metal lathe, ventilators etc.: as required
c) apply basement/retaining wall waterproofing to face to be back-filled
d) protect waterproofing after installation against puncturing

movement joints

e) maintain movement joints in structure
f) cap movement joints with waterproofing, or with a metal cover strip fixed to the sides to allow movement
g) in the case of waterproofing caps, loop waterproofing into movement joint, lay backing cord in loop and cover movement joint and upstands with special expansion joint membrane.

8.3.1 system

a) on exposed concrete roofs: 4 mm RBM
b) on exposed timber roofs: 2 or 3 mm base sheet plus 4 mm RBM
c) on balconies <10m^2: 4 mm RBM
d) on balconies >10m^2, terraces, walkways: 2 or 3 mm base sheet plus 4 mm RBM, or cementitious or acrylic RLM
e) on parking decks: 5 mm RBM
f) on planters: 4 mm anti-root RBM
g) on roof gardens: 2 or 3 mm base sheet plus 4 mm anti-root RBM
h) on concrete box gutters: 4 mm RBM
i) on timber box gutters: 2 or 3 mm base sheet plus 4 mm RBM
j) on parapet walls, freestanding walls: RLM
k) rewaterproofing: 3 or 4 mm RBM
l) on below ground surfaces, vertical or horizontal, above or below water table: 2 or 3 mm base sheet plus 4 mm RBM, or single layer APM.

8.3.2 Termination

a) dress down waterproofing onto flanges of roof outlets
b) turn up waterproofing against walls, chimney or extractor flues, roof lights, pipes etc. to >170 mm above roof level, or to the level of the damp proof course if present, or to above finished heights of masonry or concrete planter boxes, plant bases, steps etc where these abutt walls
c) counter-flash turn-ups against masonry walls with the same membrane as the waterproofing, tucked into >40 mm deep preformed grooves
d) counter-flash turn-ups against concrete walls with galvanized steel, aluminium or copper profiled cover strip bedded in a mastic sealant and mechanically fixed at 150 mm centres to the wall
e) lap and bond waterproofing to wall damp proof courses in regions with extreme weather conditions (e.g. coastal); materials must be compatible, e.g. bituminous
f) clamp waterproofing around pipes with suitable clamps
g) take up waterproofing against, over the top and 50 mm down the outer edge of perimeter upstands, parapet and freestanding walls
h) continue waterproofing over thresholds of balcony doors exposed to rain, and take up against metal floor finish edge strip
i) terminate below-ground waterproofing >170 mm above all finished ground levels.

8.4 Testing

a) perform test(s) prior to application of surface finishes
b) horizontal surfaces: a flood test of 48 hours or a spark, vacuum or air pressure test, using suitable testing apparatus
c) vertical surfaces: a spark or vacuum test, whichever is easier.

8.5 Waterproofing surface finishes/protection

a) allow three weeks for bituminous membranes to weather before covering
b) not to contaminate rainwater harvesting when relevant
c) slip/protection layer: single layer bituminous felt or double layer HDPE sheet
d) tile, paving uits or panel finish: cut neatly to fit tightly along perimeter.

8.5.1 Exposed roofs

paint

a) on plain bituminous systems: heavy brush or two coats of bituminous based aluminium paint *SANS* 802
b) do not apply on granular finishes
c) on other systems: *suitable* ultra-violet block as recommended by waterproofing manufacturer
d) on acrylic or styrene/acrylic: UV block of an enriched titanium tiocide dispersion applied in two coats in cross directions

crushed stone

e) 50 mm thick layer of light coloured non-absorbent crushed stone of 25 mm nominal size on slip/protection layer or on insulation of required thickness (SANS 204)
f) keep stone back from outlets, gutters and water shedding edges; bond stone in these areas with a thinly applied cold dressing compound

tiled insulation panels

g) high-density polystyrene insulation panels of required thickness (SANS 204) faced on top with 300 x 300 x 7–10 mm thick fully-vitrified ceramic tiles of light colour, set in cementitious tile adhesive or in epoxy; panel size 600 x 1 200 mm; lay panels loose with tight butt joints.

8.5.2 Pedestrian traffic areas

topping

a) ≥50 mm concrete topping on slip/protection layer with sealed isolation joints against fixed objects

tiles on screed

b) ≥50 mm thick screed to SANS 2001-Construction Works Part EM2 on slip/protection layer; fix tiles in tile adhesive with sealed joints against fixed objects

tiles on waterproofing

c) on bitumen systems: bed tiles in bitumen and stone chip key
d) high-density polystyrene insulation panels of required thickness (SANS 204) followed by precast concrete tiles, size as specified, loose laid with tight butt joints

paving slabs on insulation panels

e) 600 x 600 x 50 mm precast concrete paving slabs SANS 541 laid loose on high-density polystyrene insulation panels of required thickness (SANS 204) with tight butt joints

paving slabs on adjustable pads

f) 600 x 600 x 50 mm precast concrete paving slabs SANS 541 laid on patent adjustable underlay pads to keep tiles 20 – 40 mm clear of waterproofing; joints between slabs: 5 mm, left open; paving surface: level or to follow gradient as specified.

8.5.3 Vehicular traffic areas

asphalt premix

a) 50 mm compact layer of asphalt premix laid directly on to waterproofing
b) ensure premix and waterproofing are compatible

brick/concrete pavers on sand bed

c) brick or concrete pavers laid on 25 – 30 mm sand bed (see Section 21 External works)

concrete paving

d) 75 mm in situ concrete paving on protection/slip layer (see Section 2 Concrete works)

8.5.4 Basement, retaining walls

a) before backfilling, protect waterproofing with covering
b) install agricultural drain encased in stone and wrapped in geotextile membrane below level of basement floor and to fall to stormwater system, or as specified
c) backfill with clean filter sand except where cavity drainage membrane is installed, in which case backfill with excavated material.

9 Ceilings, linings, partitions, access flooring

9.1 Brandered ceilings

9.1.1 Branders, grounds

timber branders, grounds

Applicable standard: SANS 2001-Construction Works Part CT2: Structural Timberwork (roofing)

a) sawn softwood brandering: *SANS* 1783-4
b) Eucalyptus brandering: *SANS* 1707-2
c) size, and span (truss or beam spacing):

Truss or beam spacing	Dimensions, mm	
	Soft wood	Eucalyptus
6.4 mm gypsum ceiling board		
<1000	38 x 38	32 x 32
1000 – 1200	38 x 50	38 x 38
1200 – 1400	50 x 75	38 x 50
4 or 6 mm fibre-cement ceiling board		
<1050	38 x 38	32 x 32
1050 – 1500	38 x 50	38 x 38

d) where roof trusses or beams are spaced at more than the required spacing for the intended brandering size: increase brandering size, or support brandering by means of 38 x 114 mm sawn softwood ceiling joists hung between and parallel to trusses or beams on 38 x 38 mm hangers from 38 x 76 mm runners fixed at 1 500 mm centres at right angles and on top of tie-beams of trusses or on top of beams, or at right angles in between tie beams/beams
e) grounds for wall linings to masonry or concrete walls: 38 x 25 mm, fixed with suitable frame anchors
f) fix branders at right angles to roof trusses/beams and at centres *according to* ceiling board *manufacturer's instructions*
g) install larger brander dimension vertical
h) stagger brander end joints
i) fix brandering away from walls for fixing of coved cornices when relevant
j) install supporting timber where heavy light fittings are to be suspended
k) level out, starting from lowest point, using timber wedges where necessary

steel branders

l) patent hot dip galvanized steel sheet lipped channel brandering system including suspension brackets with adjusting slot
m) size or span: 1 200 mm maximum or according to manufacturer's instructions
n) nail or screw suspension bracket to side of timber truss/beam
o) level out by means of adjusting slot
p) perimeter trim: as specified

9.1.2 Fibre-cement and gypsum board ceilings

fibre-cement board

a) fibre-cement ceiling board: SANS 803, 6 mm thickness

b) brander spacing: 600 mm

gypsum board

c) gypsum board: *SANS* 266, 6,4 mm thickness
d) brander spacing: 400 mm (300 when plastered)

storing and handling

e) store boards inside a building on a damp-proof membrane or a timber platform
f) handle boards vertically by two men

cornices

g) gypsum coved cornice: *SANS* 622
h) polystyrene core coved cornice: paper covered

fixing

i) according to manufacturer's instructions
j) use longest board lengths possible
k) pattern when visible: arrange boards symmetrically about room, at right angles to brandering, with cut boards along walls, or to pattern as specified
l) lay fibre-cement boards ripple face down to hide nail heads
m) nail boards to timber brandering with 38 mm hot dip galvanized clout nails or 32 x 2,5 mm diameter hot dip galvanized serrated ceiling nails at 150 mm centres
n) screw boards to timber brandering with 25 mm drywall screws when surface is to be plastered
o) screw boards to steel brandering with 25 mm drywall screws at 150 mm centres
p) joints where ceiling is to be plastered: close butted and taped
q) provide movement/control joints through ceiling as follows or as specified
   - a clean break of 15 mm through the complete ceiling structure and finish
   - in interior ceilings at <15m intervals and total area <225 m^2
   - in exterior ceilings at <9m and total area <81m^2
   - where ceiling framing changes direction
   - to coincide with structural joints
r) nail and/or glue cornices to brandering and walls; fix wood cornices to walls with *suitable* frame anchors; mitre corner joints, splay all heading joints; join fibre-cement cornices with H-profile jointing strips.

plaster boards

s) ensure building is enclosed before ceiling boards are fixed
t) plaster entire ceiling with 3 – 6 mm patent lightweight plaster on same day as board has been erected
u) finish plaster to smooth polished surface.

9.1.3 Wood board ceilings, lining

a) thickness: to suit span and density

tongue and groove board

b) tongue and groove wood board: *SANS* 1039

wood strip, trim

c) hardwood: *SANS* 1099

plywood

d) 3-ply: *SANS* 929, of exposure class, veneer species, grade etc. as specified

fixing

e) secret nail tongue and groove boards with lost head oval wire nails; stagger all end joints
f) nail strip and plywood with panel pins
g) finish edges with wood cornice/trim of similar species and grade
h) fix wall boards to grounds to prepared wall surfaces at centres to suit board thickness and layout
i) where sound absorption insulation is placed between grounds, cover full surface with black shade cloth before fixing boards

hatches

j) material, pattern: to match ceiling.

9.1.4 Hatches

a) near equipment needing regular maintenance

timber hatch in timber brandered ceiling

b) trim 650 x 650 mm minimum clear opening in ceiling, with 38 x 100 mm sawn softwood trimmers spiked to beams or trusses
c) form hatch frame of brandering as for ceiling
d) form trap door of brandering and ceiling board as for ceiling
e) fillets to carry trap door in closed position: 50 x 13 mm hardwood nailed or screwed to ceiling around hatch opening; mitre corners
f) hang trap door with one pair 75 mm steel hinges screwed to frame, so that trap door can open 180 degrees on to top of ceiling brandering, when specified

steel hatch in timber or steel brandered ceiling

g) 0,6 mm pressed steel ceiling trap door, hinged to open 180 degrees onto ceiling, in 25 x 25 x 3 mm T-profile steel frame
h) clear opening: >650 x 650 mm
i) screw frame to ceiling brandering.

9.2 Suspended ceilings

performance

a) fire resistance in minutes, tested to *SANS* 10177
b) airborne sound insulation rating: *SANS* 717/10218
c) deflection requirements: to South African Building Interior Systems Association (SABISA).
d) structural performance requirements: safely support all anticipated loads, e.g. luminaires, smoke detectors, air grilles, wind loads, point loads

board

e) mineral fibre board: EN 13964

suspension fittings

f) patent suspension fittings of cold-formed hot dip galvanized steel T's, hold down clips, suspension rods and hooks, suspension clips, T suspension plates, lipped wall angles, shadowline wall angles and wall channel trim

installation

g) according to manufacturer's instructions
h) not before the building is enclosed, plasterwork has dried out, and services are in position and tested

i) handle boards with clean gloves
j) arrange grid symmetrically about rooms, with cut boards along walls, with straight joints in both directions, or to pattern as specified; edge perimeter infill units minimum size: half standard board width or length
k) suspend main tees from structure by hot dip galvanized mild steel strapping or 2 mm diameter hot dip galvanized wire or by patent suspension rods or hooks combined with spring clips and suspension plates
l) clip cross tees into main tees at the end of each board
m) use fixers suitable to structural soffit: expanding anchors into concrete; bolts through holes in steel or with clips; screws to sides of timber into top third of beam/rafter/joist; shot nailing is prohibited
n) level out
o) hold down ceiling boards with patent hold-down tags or wedges
p) provide extra hangers for light fittings, sound systems, air conditioning vents etc. as required

9.3 Partitions, linings

performance

a) structural requirements: *SANS* 10160
b) wall deflection requirements: to South African Building Interior Systems Association (SABISA)
c) required fire resistance in minutes: *SANS* 10177
d) required sound insulation grading: *SANS* 717/10218.

9.3.1 Materials

boards

a) gypsum plasterboard: *SANS* 266
b) fibre cement board: *SANS* 803

studs and tracks

c) metal studs and tracks: hot dip galvanized steel with wall thickness and size complying with the structural requirements of the installed system
d) timber studs: *SANS* 10082: for load-bearing or non-load-bearing walls as required

aluminium extrusions

e) extruded aluminium sections: alloy 6063 or 6261 in temper T5 or T6, of wall thickness and strength to meet the structural requirements
f) anodizing: *SANS* 1407

powder coating

g) powder coating: *SANS* 1274/1578/1796/10322
h) by applicators approved by the specified powder manufacturers

glass

i) glass: *SANS* 1263/50572
j) required marking in case of safety glass: permanently on each pane, visible after installation.

9.3.2 Drywall partitions, light weight internal walls

Frame system clad with gypsum or fibre cement board, doors, glazing, trims, skirtings etc. as specified.

9.3.3 Demountable partitions

Patent system complete with studs, braces, door and glazing frames, apertures, trims, skirtings, etc. as specified.

9.3.4 Cubicle partitions

Patent system complete with stiles, panels, doors and accessories, etc. as specified.

9.3.5 Operable partitions

a) patent operable partitions consisting of full-height panels of 75 x 1200 mm, hung on tracks and manually operated to be stackable
b) frames: aluminium alloy
c) panels: medium density fibreboard backed with sound insulation materials
d) hinges: recessed
e) seals: all round each panel to achieve the required sound insulation

9.3.6 Installation

a) according to manufacturer's instructions
b) drywall linings to walls:
   - screwed to timber or steel grounds, or
   - glued to masonry or concrete walls without grounds.

9.4 Raised access flooring

Invoked standard when required*: SANS* 10021 The waterproofing of buildings
Invoked standard when required: *SANS* 952 annex C: Notes on use, installation and protection of film (supplement to *SANS* 10021)

raised access flooring

a) raised access flooring: *SANS* 1549
   - fire resistance in minutes: *SANS* 10177
   - sound insulation grading: *SANS* 717/10218.

installation

b) according to manufacturer’s instructions.

10 Windows, doors, curtain walls, skylights, solar control

10.1 Performance

Unless specified otherwise, the following performance standards are required to be met:

mechanical performance

a) mechanical performance of windows, doors, curtain walls and skylights in respect of wind action (deflection and structural strength), water penetration, air penetration and operation within the confines of the perimeter of the main frame, irrespective of the framing material: *SANS* 613
b) design wind pressure: *SANS* 10160
c) atmospheric temperature range: between -10°C and 35°C
d) plastic, shrinkage and creep deflection of floor slabs: as specified

thermal performance

e) U-value and Solar Heat Gain Factor, including permissible air leakage: *SANS* 204, or as supplied by the glazing manufacturer as verified according to the test method ASTM C 1199 and ISO 9050 for U-values, and given in NFRC / SAFIERA 100-2004 for SHGC values, or be custom product assessed from suppliers, manufacturers, industry associations (including their online resources), and from competent assessors, who must have assessed the products in the manner prescribed by SAFIERA, or be the subject of a rational design by a *competent person*.

10.2 General requirements

a) fittings to be removable after windows have been glazed

burglar bars

b) solid mild steel or aluminium alloy of pattern as specified
c) kink bars at peg stays or latches where required

insect screens

d) metal gauze screen frames: pressed steel with baked enamel finish, or extruded aluminium with natural anodised finish, filled with 1,5 x 1,5 mm mesh fibreglass gauze
e) screens to outward opening sections:
   - attach to inside of window frame with studs or clips in such a way as to be readily removable
   - with sliding or hinged sections so as to allow access to opening stays and fasteners from the inside
   - screens to top-hung ventilators may be hinged for access to fasteners
f) screens to inward opening sections and louvres:
   - deeper frames to allow opening of window/louvre, of a heavier gauge metal
   - fix to window frames with screws or rivets
g) pivot type windows:
   - screen frames in two sections, one on outside and one on inside, with gap between sections filled with suitable rubber flashing fixed in a way as to be easily renewable

building in

h) fix frames upright, square and free from warp
i) use lugs provided with the frame

j) screw and plug where lugs cannot be built in or covered up
k) brace door jambs with timber while building in
l) fill space between backs of pressed steel door frames and wall solid with mortar
m) prevent damage and staining of aluminium frames by wrapping with paper or plastic or covering with light tack tape; leave wrappings in place until all rough trades are finished
n) avoid direct contact between aluminium and other metals or wet concrete by applying a separating coat of bituminous paint

inspection

o) view scratches and blemishes on aluminium or coatings at a distance of three metres under normal and reasonable lighting conditions.

installation

p) install according to manufacturer's instructions where applicable
q) service units at completion and leave in perfect working order.

10.3 Steel framed units

Factory finish: prepared to *SANS* 10064 and primed with zinc phosphate *SANS* 1319 inland, or hot dip galvanized to *SANS* 121 / *SANS* 14713 in the *coastal region* or corrosive atmospheres.

10.3.1 Hot-rolled steel framed units

a) hot-rolled mild steel framed units: *SANS* 727
- weather bars: 1,6 mm thick to bottom of opening-in and vertically pivot hung ventilators, and to bottom of all opening out ventilators where they occur above other ventilators
- frames: one piece construction except where to be coupled with standard coupling mullions and/or transoms
- kicking plates: 1,6 mm steel plate fixed with metal beads
- sills: fit outward opening doors with sills of door framing section (stepped), but inward opening doors with metal ties welded to frames, for embedding in thresholds (flush)

10.3.2 Cell windows

police type

a) purpose made to forms, sizes and construction as shown on type *drawings* POL 27/2 and 27/4, including window frames of standard residential window sections with sashes hung on purpose made hinges, including pull handles, wing grip turn buttons and manganese steel bars set between window sections and/or into the core of hollow sections
b) manganese steel bars: Y-steel with manganese content, heat treated to surface hardness of 50 on the Rockwell C scale with not less than 2 mm penetration on all four surfaces; no welding is allowed near the manganese bars during any stage of manufacture
c) fixed screens: provide each window with a fixed mesh screen welded into a mild steel angle section frame fixed to walls with clamps bolted to wall, with bolt head welded to clamp after tightening
d) factory finish: manganese steel bars are to be prepared and primed only (not galvanized) before set in position

correctional services type

e) as for police type except that manganese steel is to have a surface penetration hardness of between 55 and 63 on the Rockwell C scale on all four surfaces, and no fixed screens are required.

10.3.3 Pressed steel clisco type window frames

Pressed steel clisco type window frames: SANS 1311

10.3.4 Pressed steel door frames

a) pressed steel door frames: *SANS* 1129

additional clauses

b) frames for continuous power floated floors without screeds or toppings to be suitable for surface placing without damage to the floor and without compromising proper building in of the frame or the fitment of standard doors
c) steel thickness half wall width: 1,2 mm; steel thickness single rebate full wall width and frames for double swing doors: 1,6 mm
d) frames for double swing doors: jambs with V-shaped centres to fit rounded edges of doors, and plain heads or transoms, holed and prepared to receive top centres of spring hinges
e) buffers: two rubber buffers on lock side rebate of every frame.

10.3.5 Pressed steel door and frame combination

a) doors: 1,2 mm pressed steel with 40 mm edge, > two V-shaped vertical ribs over full door height, and three horizontal rails
b) frame: single rebate pressed metal door frame: *SANS* 1129
c) lock box: 1,6 mm pressed steel
d) hinges: 1 pair 100 mm steel.

10.4 Cold-rolled steel framed units

a) patent cold-rolled tubular steel profile frame with integrated fittings and gaskets
b) galvanized to 200g/m^2 and powder coated.

10.5 Aluminium framed units

a) AAAMSA certified as to performance, glazing, surface finishing, hardware, fasteners, product certification and, when required, energy rating.

10.5.1 Windows and glazed doors

a) Aluminium framed windows and glazed doors: as specified.

10.5.2 Skylights

a) obtain a *competent person*'s certificate on design loading compliance
b) sloping glazing to have an overhang if shedding rainwater on significant vertical surfaces
c) glazing bars to allow for water penetration and effective drainage to outside
d) condensation: to be removed through guttered weep system
e) screws and fixing bolts: covered with plastic head caps.

10.5.3 Curtain walling

Curtain walling: as specified.

10.6 Adjustable glass louvred windows

a) standard*: CKS* 413
b) operation: manual or remote control as specified
c) for glass see Section 17
d) fix louvre frames in fixed window frames with stainless steel or chromium plated brass dome-head screws
e) fix after window frame has been painted, when relevant
f) service louvres at completion and leave in perfect working order.

10.7 Wood framed units

a) hardwood: *SANS* 1099, clear grade, of species as specified, for exterior or interior units
b) softwood: *SANS* 1783-3, clear grade, of species as specified, for interior units only
c) joints (structural): mortise and tenon
d) rebated frames: shaped out of solid wood – lay-on door or casement stops are prohibited
e) haunches: provide top rails of door frames with bevelled haunches for building in
f) glazing beads: mitre corners; tack lightly in place before delivery
g) lugs: 500 x 32 x 1,6 mm hot dip galvanized steel lugs for building in, twice screwed to the outside of frames at 300 mm from bottom and top and intermediately at not exceeding 900 mm apart
h) dowels: provide bottom ends of door frame stiles with one 10 mm diameter steel dowel for building into thresholds
i) in the case of exposed frames, shape bottom rails and beads to shed rainwater outwards; provide drips to head and bottom rails; provide capillary breaks around opening sections
j) prepainting: one coat wood primer to backs of frames before building in.

10.8 PVC-U framed units

a) PVC-U window and door frames for external use: *SANS* 1553.

10.9 Polymer concrete framed units

a) polymer material: unsaturated polyester (UP) resin: SANS 713
b) to comply with minimum safety, heat distortion and compressive strength requirements.

10.10 Wood doors

a) wood doors: *SANS* 545 and mark bearing
b) required marking on edge or top of each door: manufacturer, exposure class, performance class; in case of flush doors, position of coat rails ('CR') and closer blocks ('CB')

flush panel doors

c) edge finish: concealed

additional clauses

d) batten doors for external use, or framed panel and glass doors for external or internal use: 44 mm thick, of hardwood (including doors to be painted), mortise and wedge tenoned, with the tenon showing on the outside edge of styles; middle rails in such a position that a mortice lock will not destruct the tenon joint
e) single swing double doors: with rebated meeting stiles
f) weather bar with drip: required to exposed exterior doors
g) veneer on pairs of doors: to match in grain and colour
h) performance rating stamp on door: do not remove until inspected in the hung position

sealing

i) seal doors, or knot and prime, on all four edges immediately after delivery on site (if not prefinished)

hanging

j) timing: delay hanging of doors until all wet trades are done
k) distortion or out-of-plumbness of frames: check and report before hanging door
l) trimming: leave clear space of 2 mm (+0 mm -1 mm) above and along sides, and 6 mm (+0 mm -3 mm) under door; take off equal amounts from each side, top and bottom of flush doors when fitting; to reduce height of panel or framed doors, take off from bottom only

m) sealing: paint or seal trimmed edges before hanging.

10.11 Fire doors and fire shutters

a) fire doors and fire shutters: SANS 1253
b) installation: SANS 1253 Annex E.

10.12 Garage doors

up-and-over garage doors

a) solid door panel of steel or wooden framework clad in weather boarding, tipping upward into horizontal open position; balanced by springs.

sectional overhead doors

b) curtain of hinged panels sliding upwards and inwards in channel guides; balanced by springs.

10.13 Roller shutter doors

a) curtain of interlocking slats or grilles running in channel guides from a spring loaded barrel, mounted overhead on steel support brackets; assembly bolted or welded to the building structure
b) automatic operation to be supplied with light, safety reverse, manual override, and remote control
c) electrical operation to include remote push button starter, limit switch assembly, emergency hand operator in event of power failure; electromagnetic brake.

10.14 Strongroom/record room doors, ventilators

strongroom and vault doors

a) strongroom and vault doors: *SANS* 949
b) required marking: manufacturer's name on outside of door; door category on inside of door.

fire-resisting record room doors

c) fire-resisting record room doors: *SANS* 1015
d) required marking: "FIRE RESISTANT ONLY" , manufacturer's door number

ventilators for strongrooms

e) double ended steel telescopic ventilator sleeves of <127 x 127 mm internally and *suitable* for wall thickness, fitted with baffle plates and flame proof wire gauze screen; face plates < 225 x 225 mm on both sides, the outer face plate fitted with drop shutter mechanism operating from a fusible metal plug; sleeves and baffle plates not less than 2 mm thick

installation

f) bolt strongroom door(s) to walls with lugs provided
g) in openings formed in walls after plastering has been completed
h) according to manufacturer's instructions
i) grout in solid with class I mortar
j) door to clear finished floor by 25 mm
k) build in ventilator(s) into openings formed in the walls in class I mortar, grouted in solid.

10.15 Solar control

Solar control devices: as specified.

11 Plaster, screeds, toppings, terrazzo

11.1 Plaster

11.1.1 Cement plaster

Applicable standard: *SANS* 2001-Construction Works Part EM1: Cement Plaster.
Specification data:
a) sands: *SANS* 1090
b) admixtures: not permitted

additional items

c) form drip ledges on the exposed bottom edge of slabs and lintels
d) maintain full width structural joints through the plaster
e) score plaster surfaces to be tiled.

11.1.2 Gypsum plaster

a) hardwall gypsum skimming plaster: proprietary retarded hemi-hydrate finishing plaster
b) application: to supplier's instructions
c) do not mix gypsum-based plaster with plaster made with common cement.

11.1.3 Lime plaster

a) limes: *SANS* 523
b) mix: consult *SANS* 523 annex C.

11.1.4 Insulating plaster

a) aggregate of low density: *SANS* 794, density 800 – 960 kg/m³ (clinker), or as specified
b) mix: 1:9 or according to supplier's instructions
c) low-density foamed mixes by specialist suppliers: prohibited without permission.

11.1.5 Barite plaster

a) plaster grade barium sulphate ($BaSO_4$)
b) mix: one part cement to two parts sand to three parts barite by mass
c) thickness: 15 – 30 mm.

11.1.6 Accessories

expanded metal

a) expanded metal: *SANS* 190, hot dip galvanized in external plaster, stainless steel in corrosive atmospheres
b) angle rounded corner protection: 1 500 x 1,0 x 35 mm girth strip

11.2 Screeds, toppings, terrazzo

Invoked standard when required: SANS 10109 Part 2 Finishes to Concrete Floors.

11.2.1 Materials

cement and aggregate

a) cement for screeds: *SANS* 50197-1 type CEM I or CEM II
b) cement for toppings: *SANS* 50197-1
c) cement extenders: *SANS* 1491

d) aggregate for screeds: concrete sand (not a plaster sand) passing through a 5 mm sieve; where a smooth surface is required, concrete sand may be blended with plaster sand in the proportion of 4:1

e) aggregate for toppings: aggregate from natural sources: *SANS* 1083

Nominal aggregate size, mm	Minimum thickness of topping, mm
6,7	25
13	40
¼ thickness of topping, maximum19	>40

f) aggregate for terrazzo: marble aggregate consisting of equal parts of sizes ranging from 3 to 4 mm and 4 to 6 mm

proprietary surface treatments

g) form: dry shakes, coatings or screeds as specified

h) colouring pigment: BS 1014 or BS EN 12878

joint sealants

i) sealants: see section 6

mesh reinforcement

j) welded steel fabric for reinforcement of topping when specified: *SANS* 1024, of fabric reference number 193 or 245

water

k) water for mixing: drinking water

edge, dividing, feature strips

l) see Section 16 Hardware.

11.2.2 Mix

screed

a) 1 part cement to 3½ parts sand, or 50 kg (one bag) cement to 130 L sand (two wheelbarrows)

b) mixing: by hand or preferably by forced-action mechanical mixer for 3 minutes

c) use within 45 min.

topping

d) mix proportions may be arrived at by a process of mix design or by the use of recognised tables of trial mixes with South African aggregates

terrazzo

e) 1 part cement to 2 parts marble aggregate

consistency

f) slump: 40 – 50 mm as measured by the standard slump test *SANS* 5862

colouring pigment

g) application: mix with dry cement, or add to freshly laid surface as a dry shake

11.2.3 Preparation

a) ensure all piped services are in position in base; do not bury services in topping or screed
b) ensure base concrete is hard and strong, free of cracks and reasonably accurate to required level; expose clean hard concrete by chipping if necessary and remove all dust, preferably using an industrial vacuum cleaner
c) wet surface for four hours before laying, only if concrete is absorptive; remove free water before grouting (test concrete for absorptiveness by pouring a cupful of water onto the surface; if water is absorbed within a few minutes, suction warrants that the surface should be wetted; if not, do not wet)
d) prepare bay forms for toppings to coincide with joints in base
e) ensure edge/dividing/feature strips are in position.

11.2.4 Laying

a) make up grout by mixing about ½ L water per kg cement, or a proprietary bonding agent, and brush over surface 10 to 20 minutes before applying screed or topping; apply bonding agent *according to manufacturer's instructions;* use within 30 minutes of mixing
b) spread mix, compact, and lightly wood-float to required thickness

screed

c) lay guide strips of screed mix to establish levels
d) lay screed in panels as large as possible in one operation without intermediate joints
e) lay screeds not to be covered with a floor finish in panels not exceeding 9 m^2 or to acceptable pattern
f) screed thickness: 25 – 50 mm
   - on stair treads: 20 mm
   - on stair risers and skirtings: 10 mm
   - on flat concrete roofs to receive waterproofing: minimum thickness 40 mm and to fall
g) exposed salient angles: round to 20 mm radius

topping

h) establish levels by means of bay forms
i) cast bays in chequerboard fashion in panels not exceeding 9 m^2 or cast continuously and saw contraction joints as described under JOINTS
j) topping thickness: 25 – 40 mm
k) mesh reinforcement: place as close to the upper surface as is permissible

terrazzo

l) spread screed mix, compact and lightly wood float to 25 mm thickness as described under Screed; set edge/feature/dividing strips into screed to form panels not exceeding 1 m^2, or to pattern as specified; while screed is still plastic, spread and compact terrazzo mix in bays to thickness of 15 mm and trowel to level surface.

11.2.5 Finishing

screeds and toppings

a) ordinary finish: leave surface as finished by wood floats to smooth or non-slip finish
b) hard finish
   - bull-float immediately after levelling before any excess moisture or bleed water appears on the surface
   - leave finish undisturbed for two to four hours (longer in cold weather), remove bleed water and laitance on surface
   - float again, and steel trowel until desired texture is obtained

- use power trowels if areas are large
- finish with carpet-faced floats or soft brushes or broom to desired texture

c) do not add water or dry cement at any stage; do not trowel too soon; avoid overtrowelling

pigmentation

d) integral application: lay mix in two thicknesses in one operation, the lower unpigmented thickness brought up to 6 mm of the finished level, and the upper pigmented thickness laid with the required amount of pigment mixed with the dry cement before adding water
e) dry shake application: dry-shake pigment to the final surface and trowel in to an acceptable finish and pattern

grinding and polishing

f) grind surface after four days by wet mechanical process until aggregate is fully exposed and surface is even and smooth or non-slip as required
g) grind small or awkward surfaces by hand with carborundum stone
h) wash clean.

11.2.6 Joints

isolation joints

a) against walls, columns or other fixed objects
b) 20 mm wide through full thickness of topping, screed or terrazzo
c) to coincide with isolation joints in base

intermediate sawn contraction joints

d) in continuously cast unreinforced topping only
e) saw halfway through topping thickness with concrete saw
f) form panels not exceeding 9 m^2, or to pattern as specified
g) arris-round top edges of joints with a radius of 3 – 5 mm

patent movement joint systems

h) patent movement joint system with flexible inserts when specified
i) fix through pre-drilled holes using cross-head stainless steel screws and plugs at 300 mm centres on both sides of joint.

11.2.7 Surface regularity

a) degree of surface regularity: II (*SANS* 10155) 5 mm along a 3 m straight-edge in any direction, and gradual, or as specified
b) deviation of floor finish from datum level: ±15 mm and gradual; less near door openings or other defined areas where levels must be accurate.

11.2.8 External thresholds

a) remove one masonry course of foundation wall over width of door opening
b) place metal edge strip against exposed surface bed
c) cast concrete topping grade 20 threshold between reveals, sloping away from door, or lay precast threshold
d) finish threshold with a non-slip finish or 75 mm wide reeding, stopped 100 mm from threshold ends (see drawing), or finish concrete to a non-slip finish.

11.2.9 Edge strips

a) see Section 16 Hardware for material, size
b) under internal doors

- where floor finish changes material or pattern
- so placed that floor change is not visible when door is closed
- top edge of strip to be level with finished floor

c) under external doors
- top edge level with finished internal floor
- with external exposed threshold 5 mm lower.

11.2.10 Skirtings

a) 75 mm high of same material as floor finish and in same operation
b) hollow rounded at junction between floor and skirting, top edge level with slightly rounded edge
c) to project 10 mm from face brick and bagged wall surfaces, 5 mm from face of plastered walls, and flush with tiled wall surfaces.

11.2.11 Curing

a) cure finish for at least seven days by
- uniform application of a liquid membrane-forming compound complying with AASHTO M148 type 1-D or type 2 to manufacturer's instructions, or
- ponding water on surface, or
- covering with sand which is kept moist, or
- covering with plastic sheeting

b) extend curing time in cold weather when ambient temperature falls below 10ºC.

11.2.12 Inspection, testing and repair

a) inspect screed or topping as late as possible in the construction program
b) test adhesion of screed or topping to base by tapping surface with a hammer or end of a rod; hollow sound indicates lack of adhesion
c) isolate rejected panels by sawing with a mechanical concrete saw in an acceptable pattern, remove and relay, using the same procedure as above, starting with preparation of the base.

11.2.13 sealing

a) seal joints with a suitable elastomeric material when specified
b) joints subjected to heavy traffic: fill with a *suitable* semi-rigid epoxy

12 Tiling

12.1 Materials

ceramic wall and floor tiles

a) ceramic wall and floor tiles: *SANS* 1449
b) porcelain tiles, fully vitrified: *SANS* 13006 group B1a, water absorption ≤ 0,5%
c) moisture expansion limit: <0,06% for external floors, and for internal floors in wet and/or cold areas
d) scratch hardness on the MOHS scale: >4 for walls; >7 for floors
e) required marking on tile and/or packaging: trade name, country of origin, group, dimensions, class of resistance of glazed tiles to acids and alkalis, surface abrasion resistance of glazed tiles

stone tiles

f) natural stone: from a South African quarry
g) cast stone: BS 1217

concrete tiles

h) precast concrete tiles: *SANS* 541
i) terrazzo tiles: precast concrete with a terrazzo facing: BS EN 13748

mosaic

j) tesserae glued to brown paper or water-resistant synthetic mesh fabric in squares of about 300 x 300 mm

profiled and decorative tiles

k) skirting, dado, bullnose and other profiled or decorative tiles: as specified.

accessories

l) movement joint strip: of depth that allows fixing to the substrate or background
m) stair nosing and movement joint strip: with polyurethane or PVC infills.

adhesive

n) proprietary adhesive BS EN 13007, of *suitable* type
o) adhesive and associated systems: from one manufacturer

grout

p) proprietary grout: BS EN 13007 of suitable type and colour
q) use epoxy grout in areas where hygiene is important.

12.2 Tiling

Invoked standard when required: *SANS* 10107 Design and Installation of Ceramic Tiling

preparation

a) complete all adjacent rough construction work and install and test all services in background before commencing tiling work
b) examine backgrounds, remedy defects and allow to dry to equilibrium moisture content; remove dust, loose matter, efflorescence and laitance
c) in the case of smooth and dense concrete: key surfaces with a priming agent as recommended by the adhesive manufacturer prior to application of the adhesive
d) set out field, border and pattern, when relevant

bedding

e) bed tiling units in adhesive *according to* tile and/or adhesive *manufacturer's instructions*
f) use white tile adhesive for white marble or marble with a delicate colour
g) bed field tiles with straight joints in both directions, or as specified
h) cut wall field tiles only along edges and bottom of field
i) continue floor patterns through openings connecting areas with similar tiling
j) sills: joints to coincide with wall tile joints when of similar material
k) external sills
   - lay tiles symmetrically about opening, with cut tiles at sill ends
   - to slope and projection as specified
   - tuck tiles under and behind drip in wood or aluminium window frames, and under leg of steel window frame
   - bed window frame lugs solid in mortar – do not remove or bend
l) lay shower thresholds sloping towards shower
m) return wall tiling into reveals of openings.

12.3 Jointing

joint width

a) consistent throughout
b) pressed ceramic tiles:
   - internal: 2 mm
   - internal for large format wall tiles: >3mm, regardless of any instruction from the tile manufacturer
   - external: >3 mm
c) extruded floor tiles: 6 – 10 mm
d) terrazzo tiles: 1,5 – 3 mm
e) stone tiles: butt-joined

joint depth

f) at least equal to thickness of tile but >6 mm

grouting and pointing

g) grout joints of width <3 mm; point wider joints
h) apply proprietary grout mixes *to manufacturer's instructions*
i) use epoxy compound or acid-proof cement mortar if tiles are specified as acid-proof
j) work grout into joints with a squeegee until joints are filled flush with surface
k) tool joints to level surface slightly below tile edge.

12.4 Movement joints

in situ movement joints

a) form by a temporary filler strip that is removed when tiling is sufficiently firm, leaving a clean and straight open joint
b) seal with an elastomeric material – see section 6

preformed compression joint strip

c) PVC or metal angle edges with *suitable* flexible infill
d) extend to substrate and key into adhesive bed or fix through pre-drilled holes using *suitable* fixers as tiling proceeds
e) level with, or slightly below, floor surface

f) do not use in areas where hygiene is important

isolation (perimeter) joints

g) isolation joint width: 10 mm
h) form around perimeter of floor, columns, kerbs, steps and plant bases
i) form joint adjacent to skirting in areas where hygiene is important

intermediate joints

j) to same width as grouted tile joint
k) position:
   - at 3 m centres maximum externally, or internally in wet areas or in areas where large thermal movement or vibration is expected
   - at 10 m centres maximum internally in areas of up to 500 m² of floor
   - at 5 m centres maximum internally in areas exceeding 500 m² of floor
   - over supporting walls or beams on suspended concrete or timber floors
   - where different background materials meet
l) adjust spacing to coincide with structural features like columns

structural joints

m) joint width: same as structural joint width in substrate
n) to align with structural joints in the substrate or background
o) in the case of structural joints in substrates or backgrounds being irregular, not straight, or not coinciding with that of the tiling: obtain a decision as to its treatment.

12.5 Cleaning

a) sponge tiled surface with water and polish with clean, dry cloth
b) do not use acid cleaners, scouring powder or abrasive cleaning materials
c) protect absorbent floor finishes (for example quarry tiles) with an application of non-slip wax polish or *suitable* proprietary sealer.

13 Floor coverings, wall linings

13.1 Preparation

a) complete all building operations that may damage the floor or lining before laying flooring or lining
b) ensure embedded pipes, conduit, cables etc.are in position and tested
c) ensure substrate is dry and clean; in case of porous or dusty base, apply primer to improve bond between base and adhesive when relevant
d) rectify any defects in base; apply levelling or smoothing compounds only to repair minor surface irregularities, and *according to manufacturer's instructions*
e) ensure edge/dividing/feature strips are in position when specified (see section 16)
f) ensure sufficient acclimatisation period for the material, when relevant.

13.2 Materials

primers and adhesives

a) primers, adhesives, additives, patching and repair compounds and waterproofing compounds shall be low-VOC proprietary products supplied by one manufacturer, suitable for the job at hand, compatible to the floor covering and substrate, applied in accordance with the manufacturer's instructions
b) adhesive shall be single-pack elasticised adhesive or an adhesive as recommended by the manufacturer.

13.3 Thermoplastic and similar flexible covering

Invoked standard when required: SANS 10070 The Laying of Thermoplastic and similar Flexible Floor Covering Materials

13.3.1 Materials

a) semi-flexible vinyl tiles *SANS* 581
b) flexible vinyl flooring: *SANS* 786
c) linoleum sheeting or tile: as specified
d) rubber sheeting or tiles: recycled rubber of density between 800 to 1500 kg/m³, of light colour and of thickness, size, and texture as specified
e) accessories: skirtings, trim, nosings etc. as specified.

13.3.2 Laying

a) according to manufacturer's instructions
b) set out pattern as specified; continue pattern through door openings connecting rooms with similar flooring
c) weld joints in sheet flooring

finishing

d) clean and polish floors with two coats polymer floor dressing *SANS* 1042.

13.4 Wood flooring, solid and laminate, on solid substrates

Invoked standard when required: *SANS* 10043 The installation of wood and laminate flooring.
Traffic class when relevant: as specified.

13.4.1 Materials

a) unpack solid wood panels, store dry and under cover, allow free air circulation to bring panels to equilibrium moisture content

solid wood strip, block, parquet, mosaic

b) density: >640 kg/m³ at moisture content of 12 %
c) strip to be tongued, grooved and end-matched
d) block dimensions: face width 57—90 mm, length 200—500 mm, thickness >20 mm
e) parquet flooring: >6 mm thick

faced plywood or fibreboard

f) factory assembled in panels of random lengths, and in widths up to 300 mm depending on species
g) thickness: not less than 18 mm when laid on battens
h) edges: tongue and grooved to produce a tight sliding fit and a flush joint on face side of strip, and end-matched

decorative melamine laminate

i) decorative melamine laminate flooring: EN 13329
j) thickness: 8 mm
k) *suitable* for floating application to a fully supporting substrate
l) provided with patent interlocking system
m) built-in insulating underlay: when specified

adhesive

n) single-pack elasticised adhesive or an adhesive as recommended by the manufacturer

battens

o) battens: sawn softwood timber to comply with *SANS* 1783-4, size 40 x 20 mm minimum thickness
p) battens for sprung floors: 50 x 50 mm laminated softwood

damp proof membrane

q) over-slab damp proof membranes shall be new polyolefin film to SANS 952 class C or an Agrément certificated polyethylene sheet at least 0,2 mm thick.

movement joints

r) patent movement joint strip: see Section 16.

13.4.2 Installation

preparation

a) ensure partitions are in place before floating floors are laid

installation in general

b) not over underfloor heating without written approval of the flooring manufacturer and/or the installer
c) lay panels or strips in same direction as angle of light incidence; where this is not important, lay parallel to longest side of room
d) continue pattern through door openings connecting rooms with similar flooring
e) movement joints: allow 20 mm clear space against all fixed objects including door frames, and every 10 m in both directions
f) stop or cut back plaster finish on walls short of finished floor level when required to ensure skirting covers the joint

nail down

g) lay damp-proof membrane over concrete substrate on the ground; lap sheets by 300 mm
h) fix battens at 400 mm centres to substrate except in case of sprung floors where battens are to be laid floating on *suitable* resilient pads
i) secret-nail flooring strips to battens through the tongue at an angle of 45°; header joints may occur in the spaces between battens, provided that each length of flooring is nailed to at least two supports; header joints to be random staggered
j) fill space between battens with cement:sand mix when underfloor heating is installed

glue down

k) spread adhesive evenly on substrate with a serrated trowel
l) place panels accurately on setting out lines
m) tap firmly in position within open time of adhesive

floating

n) lay damp-proof membrane over concrete substrate on the ground; lap sheets by 300 mm
o) lay foam underlay as recommended by manufacturer over entire floor area
p) join panels with patent click jointing system; random stagger end joints
q) use manufacturer's accessories for intermediate joints, movement joints, skirtings, split-level treatments, nosings, and marrying to other flooring materials

finishing solid flooring

r) when relevant, ensure adhesive has completely cured before starting sanding operations
s) sand with mechanical floor sander in one operation (fine only) to smooth and even surface
t) finish untreated wood floors with one coat clear wax polish

finishing faced plywood or fibreboard panels

u) prefinished panels: clean down
v) panels having to be sanded: make absolutely certain of the process before attempting this work, and obtain prior permission.

13.5 Textile flooring

Invoked standard when required*: SANS* 10186 The Installation of Textile Floor Coverings.
Invoked standard when required: *SANS* 13746 Textile Floor Coverings – Guidelines for Installation and Use on Stairs.
Invoked standard when required: *SANS* 2424 Textile floor coverings – vocabulary.

13.5.1 Materials

textile flooring

a) textile flooring (pile construction): *SANS* 1375
b) textile flooring (needle punched construction): *SANS* 1415

carpet underlays

c) carpet underlays: *SANS* 1419, with location grade similar to location grade of floor covering

accessories and fixing materials

d) as recommended by carpet manufacturer
e) use non-flammable contact adhesive where fire ratings are critical.

13.5.2 Installation

a) according to manufacturer’s instructions

b) use coverings from same production run to ensure uniform colour and texture
c) agree on direction of seams and pile; pile to lie down stairs; place longitudinal seams away from traffic areas; place cross seams in crotch of stairs
d) start full widths on door side of room; finish carpets under doors within thickness of closed door
e) cover exposed carpet edges with *suitable* metal edging strip
f) to prevent bow-wave effects under wheels, for example in medical institutions, stick carpet to floor with suitable adhesive
g) use protective stair nosing on carpet tiles and fibre-bonded coverings
h) stair nosings to have minimum radius of 12,5 mm; if less, use protective nosing
i) secure covering by carpet gripper lengths at each crotch riser and tread or by means of adhesive
j) ensure continuity of level between covering and stair nosing; fix nosing to *suitable* spacers, e.g. hardboard or plywood strips with adhesive and screws
k) nosings to be wide enough (60—100 mm) to prevent rocking.

13.6 Epoxy flooring

a) type: seamless epoxy mortar floor
a) epoxy mortar: epoxy resin mixed with *suitable* aggregate of specified colour and size

application

b) according to manufacturer's instructions
c) scabble or sandblast surface to provide necessary grip
d) prime surface with low-viscosity epoxy
e) apply final epoxy finish after 10 h by trowel or by self-levelling, to thickness and finish as specified
f) prepare sample panel
g) stop finish against metal strips on both sides of movement joints.

14 Painting, paperhanging

Invoked standard when required*: SANS* 10305 Painting of Buildings part 4, 5, 6

Invoked standard when required*: SANS* 12944 Paints and varnishes – corrosion protection of steel structures by protective paint systems

14.1 Materials

a) *suitable* for intended purpose and for surface to which it is to be applied
b) restrict all paint to one manufacturer where possible; complete paint systems – primer, undercoat and finishing coat – to be as recommended by the same manufacturer
c) containers to reach site unopened, bearing *SANS* -mark and specification number when specified
d) exterior quality for exterior work

primers

e) alkali-resistant plaster primers: *SANS* 1416
f) primers for interior and exterior wood: *SANS* 678.
g) zinc phosphate primers for steel: *SANS* 1319.
h) pretreatment, wash or etching primers (one or two-pack) for metals: of *suitable* quality
i) primer-sealers, penetrating primers, masonry sealers, bonding liquid and universal primers for plaster, concrete, brick, block and stone: of *suitable* quality or the subject of an active Agrément Certificate

undercoats

j) universal undercoats: *SANS* 681

finishing paints

k) alkyd high gloss finishing paint: *SANS* 630
l) decorative paint for interior use: *SANS* 515
m) emulsion paint: *SANS* 1586
n) textured emulsion wall coating: *SANS* 1227
o) aluminium paint, general purpose: *SANS* 682
p) micaceous iron oxide paint, masonry paint, cement paint and lime-wash: of *suitable* quality or the subject of an active Agrément Certificate

varnishes, varnish stains, stains, sealers

q) varnish or varnish stains for interior use: *SANS* 887
r) stains: water-borne or solvent-borne
s) sealers: water-borne acrylic exterior quality, *suitable* for application on the material to be coated; sealers for wood to contain fungicides that inhibit the development of blue-stain fungi

bituminous and tar-based coatings

t) bituminous aluminium paint: *SANS* 802
u) other bitumen-based coatings: of *suitable* quality or the subject of an active Agrément Certificate

specialized coatings

v) two-pack epoxy primers, two-pack coal-tar epoxy coatings, one and two-pack epoxy and polyurethane coatings, cellulose coatings, and vinyl primers, undercoats and finishes: of *suitable* quality or the subject of an active Agrément Certificate

knotting, stopping, fillers

w) knotting for the treatment of knots in wood: quick-drying resin solution or an aluminium primer
x) stopping and fillers: *suitable* to fill holes and imperfections in the material to be painted
y) fillers: oil-based, emulsion-based or supplied in powdered form

stirring

z) stir paint materials before use and at intervals during use unless the manufacturer's instructions state otherwise

thinning

aa) thin paint only to improve penetration or facilitate application, for example on surfaces of high or variable porosity, or for spray application; thinner type and proportion: as recommended by the manufacturer

two-pack materials

bb) observe manufacturer's instructions regarding mixing proportions, induction period (standing time), pot life and the possible extension of pot life.

14.2 Preparation of surfaces

a) allow time for the drying of surface moisture
b) ensure work by other tradesmen that might affect painting has been completed
c) inspect factory-primed components to ensure that the primer is in satisfactory condition; if not, take remedial action
d) remove excess pipe jointing material
e) when specified, remove hardware, light fittings and other removable fittings that can be contaminated; mark, store and refix after completion
f) mask fittings that cannot be removed
g) seal cracks between frames, skirtings, cornices etc. and walls with paintable acrylic sealant
h) protect surfaces not to be painted

cleaning

i) clean all surfaces of dirt, grease, soot, mould and marks –spare no time or effort
j) limit cleaning to dry abrading and dusting when possible
   - by means of stiff brush (not wire), abrasive paper, emery cloth, steel wire wool or nylon fibre pads as required
   - always sandpaper wood in direction of grain
   - remove pencil marks and other surface discolouration
   - in the case of window frames, take care not to scratch the glass, especially with abrasive paper
   - dusting: after dusting down, sweep or vacuum floors; do not sweep or dust whilst painting is in progress
k) remove superficial dirt by washing only if required
   - with a solution of sugar soap, household detergent, cleaning powder or mild soap
   - use proprietary cleaning materials strictly in ccordance with the manufacturer’s instructions
   - rinse surfaces with clean water before the solution dries
   - allow to dry before coating
   - proprietary emulsion cleaners or degreasing solutions may be used for removing heavy deposits of oil or grease

existing coatings

l) keep only when in a sound condition and compatible to the coating to be applied

m) remove completely or partially any coating under condition of poor adhesion, flaking, peeling, blistering, cracking, crazing and severe chalking or powdering, and when adhesion is generally sound but with a rough surface
n) remove completely if the coating to be applied is not compatible with the existing one; seek specialist information from the manufacturer in case of doubt
o) remove by burning off or by the use of paint removers, washing, scraping, abrading, steam, abrasive blast cleaning or other *suitable* method

burning off

p) burn off using blowtorch or hot-air gun
q) take care not to burn or crack the background
r) remove all flammable materials from the work area
s) use other methods on wood that is to be refinished with a clear coating system, on carved or heavily moulded woodwork, or for removal of highly flammable coatings
t) means of extinguishing fires shall be readily available when burning off

paint removers

u) type: *suitable* for the removal of the coating at hand
v) alkaline (or caustic) type paint removers: do not use on zinc or aluminium
w) solvent type paint removers: use under conditions of proper ventilation and the removal of possible sources of ignition
x) apply paint removers liberally and in sufficient applications to enable easy removal
y) clean surface when removal is complete, in *according to manufacturer's instructions*

abrasive blast cleaning

z) abrasive blast cleaning: *SANS* 10064
aa) take care not to damage the background
bb) mask surrounding surfaces

treatment of organic growth

cc) remove mould (mildew) and algae (green and black stains) before painting by scraping or brushing, blast-cleaning or high-pressure water cleaning, followed by the application of a *suitable* fungicidal wash like a solution of 1 part bleach to 4 parts water or, in the case of proprietary materials, as directed
dd) apply washes in dry weather
ee) apply a further application of fungicidal wash after removal of the dead organisms to delay re-establishment of the growth.
ff) allow to dry before overcoating.

14.3 Colours

a) colours of undercoats to match finishing coat but with enough difference to be able to distinguish between coats
b) prepare colour samples of finishing coats before any bulk paint is purchased
c) identification colour marking (e.g. pipes transporting different fluids/gases): *SANS* 10140.

14.4 Preparation for painting

a) select paint systems most suited to the environment, compatible with substrate and other components of the system
b) follow manufacturer’s instructions; observe manufacturer's recommendations in respect of temperature and its relation to curing time and pot life
c) sandpaper all coats of paint and varnish and leave time to dry before next coat is applied

d) do not paint when conditions are unsuitable, for example dust, insufficient light, direct sunlight or inclement weather; do not apply paint if the ambient temperature is <10>35 °C, or if the relative humidity is <10>85 %
e) spray-paint only where this is the accepted method; mask all surrounding surfaces when spray-painting; do not spray paint in windy weather.

14.5 Knotting, stopping, filling and priming

a) knotting: to cover wood knots
b) stopping: for stopping up holes, wide cracks, open joints and similar imperfections, including the repair or removal and replacement of defective glazing putties
c) use cement plaster or a proprietary plaster repair product for stopping holes in plaster; spot prime all plaster repairs, fillers etc. on walls with a masonry primer once fully cured
d) fillers: for filling and levelling, for example shallow depressions, open grain, surface roughnesses, nail and screw heads, fine cracks and restoration of the original film thickness where this was locally damaged
e) apply stopping and fillers by flexible putty knife on broad surfaces, and by brush on mouldings; allow surfaces to dry; rub down to a smooth surface
f) prime or seal woodwork to be built in before building in; this applies to structural timber, all frames, all six sides of a door, and to rebates and backs of beads in glazing apertures.

14.6 On-site pre-treatment and priming of non-ferrous metals and stainless steel

aluminium

a) smooth aluminium surfaces (sheets, extrusions and aluminized steel): degrease, and lightly abrade or pretreat with a twin-pack vinyl wash primer, followed by one coat zinc phosphate primer
b) rough aluminium surfaces (castings and sprayed metal coatings): lightly abrade, remove dust and dirt; sprayed metal coatings might require washing; pretreat sprayed metal coatings with a wash primer or etching primer immediately after application of the coating, followed by one coat zinc phosphate primer

zinc and zinc aluminium alloy, sprayed coatings

c) zinc sheet, zinc-coated steel (hot dip galvanized, sherardized or electroplated), and zinc aluminium alloy coated steel (hot dip): degrease, and lightly abrade or pretreat with a wash or etching primer, followed by one coat zinc phosphate primer
d) sprayed zinc and zinc aluminium alloy coatings: wash if required, and pretreat with a wash or etching primer, preferably immediately after application of the coating, followed by one coat zinc phosphate primer
e) where hot dip galvanized steel was unavoidably welded on site, clean joint and repair coating using a zinc rich paint or epoxy

copper, brass and bronze

f) copper, brass and bronze coatings: degrease, and lightly abrade or pretreat with a wash or etching primer

lead

g) lead: wet abrade and pretreat with a wash or etching primer

cadmium coatings

h) cadmium coatings: degrease, and lightly abrade or pretreat with a wash or etching primer

tin coatings

i) tin coatings: degrease and lightly abrade

chromium and nickel coatings

j) chromium and nickel coatings (if corroded): abrade and pretreat with a wash or etching primer

stainless steel

k) stainless steel: degrease, and lightly abrade or pretreat with a wash or etching primer.

14.7 Application of paint

a) apply paint by brush, roller or spray-gun as required

brush or roller

b) prime wood surfaces by brush only, well worked in
c) clean brushes and rollers after use and hang to dry

spray gun

d) spray painting is allowed only where this is the accepted method of application
e) spray paint by air spray, airless spray or electrostatic spray of appropriate type, *suitable* to the material and type of work
f) mask or otherwise protect adjacent surfaces not to be sprayed
g) do not spray-apply conventional primers for building surfaces
h) clean spraying equipment every time after use, or when changing the paint colour, by spraying copious amounts of thinner or solvent through the spray gun

general

i) apply paint coats according to manufacturer's instructions
j) allow paint coats to dry before applying subsequent coats
k) colours: to sample
l) tints of undercoats: distinguishable from succeeding coats.
m) minimise waste from paint and associated materials: buy only enough paint for the job; store with lid tightly closed; minimise brush or roller cleaning by wrapping in plastic between coats; brush or roll the applicator onto newspaper before cleaning; do not pour cleaning liquids straight down the drain – allow solids to settle before doing so; dispose solids as garbage.

14.8 Paint systems for on-site application

Paint system and colour: as specified.

14.8.1 Cement-based surfaces, brick and stone

(cement plaster, concrete, brick, block and stone; fibre-cement goods; cement-based boards, tiles and panels; glass-fibre reinforced cement (GRC) cladding)

alkyd paint

a) one coat alkali-resistant primer; or, for plaster only,
b) a water-thinned primer, followed by, for interior work only,
c) one universal undercoat and one coat alkyd gloss finish; or
d) two coats alkyd semi-gloss or matt finish; or, for exterior work
e) one universal undercoat and one or two coats alkyd gloss finish

emulsion paint

f) a water-thinned first coat of emulsion paint on surfaces of high or variable porosity; and, for interior work only,

g) two coats matt, high-opacity finish "contract" emulsion paint *SANS* 1586 grade 4; or
h) one coat ditto, spray applied; or, for exterior work
i) two or three coats matt or semi-gloss finish general purpose emulsion paint, or
j) for fibre-cement roofs in *coastal areas,* an anti-fungicidal paint

textured emulsion paint

k) *suitable* primer; and, for interior work only,
l) one coat sand-textured paint, over-painted if required

masonry paint

m) *suitable* primer; and
n) mineral type masonry paint for interior or exterior work; or, for exterior work only,
o) two coats smooth or fine-textured solvent-borne or emulsion-based masonry paint; or
p) one or two coats heavy-textured solvent-borne masonry paint; or
q) one coat heavy-textured emulsion-based masonry paint.

cement paint

r) two coats cement paint for interior or exterior work
s) not on gypsum plaster

masonry sealers

t) one or two coats according to manufacturer's instructions

lime wash

u) two coats lime wash, applied with a 200 mm block brush.

14.8.2 Ferrous metals

a) (clean iron and steel; total film thickness should be115 to 145 µm)

alkyd paint on blast-cleaned surfaces

b) two coats solvent-borne primer; and
c) one coat solvent-borne undercoat; and
d) two coats alkyd gloss finish

alkyd paint on manually cleaned surfaces

e) two coats etching primer (one-pack or two-pack) or zinc phosphate primer; and
f) one coat solvent-borne undercoat; and
g) two coats alkyd gloss finish

alkyd paint on factory primed surfaces

h) inspect primer for soundness and touch up where required, and
i) one coat solvent-borne undercoat; and
j) two coats alkyd gloss finish

alkyd paint on cast iron

k) remove bitumen until clean, sound substrate is achieved
l) paint one coat metal primer, and one coat high gloss alkyd paint, or
m) two coats general purpose semi-gloss emulsion paint

micacious iron oxide paint on blast-cleaned or manually cleaned surfaces

n) two coats micacious iron oxide paint, high-build type

aluminium paint on blast-cleaned or manually cleaned surfaces

(fencing material)

o) two coats aluminium paint

heat-resistant paint

p) heat-resistant paint system on steel: of *suitable* type, applied according to manufacturer's instructions.

14.8.3 Wood

alkyd paint on interior wood

(window joinery, skirtings, doors and frames)

a) wood primer; and
b) one coat universal undercoat and one coat alkyd gloss finish; or
c) two coats alkyd gloss finish

alkyd paint on interior plywood doors

d) water-borne primer, but check compatibility with water-repellant organic solvent preservatives; and
e) one coat universal undercoat and one coat alkyd gloss finish; or
f) two coats alkyd gloss finish

alkyd paint on exterior softwood and plywood

(window joinery, solid doors and frames, cladding, bargeboards, fascias and soffits)

g) one coat solvent or water-borne semi-transparent primer (base coat); followed by
h) one or two coats universal undercoat; and
i) one or two coats alkyd gloss finish

textured coatings on exterior softwood and plywood

(window joinery, solid doors and frames, cladding, bargeboards, fascias and soffits)

j) one coat solvent-borne or aluminium textured primer; and
k) one or two coats emulsion or solvent-borne textured coating

alkyd paint on exterior hardwood

l) one coat aluminium primer; and
m) one or two coats universal undercoat; and
n) one or two coats alkyd gloss finish (two coats externally)

paint on exterior plywood doors

o) transparent preservative primer/base coat; and
p) multi-coat paints formulated for improved performance according to manufacturer's recommendations, gloss finish

alkyd paint on wood fibre and particle board

(hardboard, mediumboard, medium density fibreboard (MDF) and softboard not factory-primed or sealed)

q) one coat primer-sealer or water-thinned primer or aluminium primer; or
r) one coat alkali-resistant primer for flame-retardent treated board; or
s) one coat aluminium wood primer for bitumen-impregnated softboard; or
t) one coat resin-based wood primer or primer-sealer or water-thinned primer or aluminium primer for particle board; and
u) one coat universal undercoat and one coat alkyd gloss finish; or

v) two coats alkyd semi-gloss finish

emulsion paint on wood fibre and particle board

(hardboard, mediumboard, medium density fibreboard (MDF) and softboard not factory-primed or sealed)

w) no primer, except for absorbent board in which case first coats shall be thinned; or
x) one coat alkali-resistant primer for flame-retardent treated board; or
y) no primer for bitumen-impregnated softboard; or
z) no primer for particle board, except for single layer board in which case a resin-based primer shall be applied; and
aa) two or three coats semi-gloss finish general purpose emulsion paint

alkyd paint on softwood or hardwood gates and fences

bb) one coat solvent-borne or aluminium primer; and
cc) one or two coats universal undercoat; and
dd) two coats alkyd gloss finish

transparent finish systems for wood (interior)

(interior general joinery, surfaces, linings and fittings)

ee) decorative wood stain, as required; and
ff) one or two coats interior alkyd, urethane or urethane/alkyd resin varnish, on worktops, or
gg) one or two coats urethane varnish, two-pack or moisture-curing, for surfaces requiring exceptional abrasion resistance, or
hh) one or two coats wood sealer *suitable* for interior use

transparent finish systems for wood (exterior)

(exterior window joinery, solid doors and frames, cladding, bargeboards, fascias and soffits)

ii) two or three coats exterior wood sealer.

14.8.4 Plasterboard

(ceilings, bulkheads, partitions)

alkyd paint

a) a primer–sealer or water-thinned primer; and
b) one coat universal undercoat; and
c) one coat alkyd semi-gloss finish; or
d) two coats alkyd semi-gloss finish

emulsion paint

e) two coats matt, high hiding, scrub resistant emulsion paint on walls
f) two coats matt utility grade emulsion paint on ceilings and bulkheads.

14.8.5 Plastics

paint on unplasticized polyvinyl chloride (PVC-U)

(PVC-U cladding, window and door frames, gutters, down-pipes, waste and vent pipes and window frames)

a) two-pack wash primer followed by conventional alkyd gloss or emulsion paint finish system; or
b) a long-life coating of a specialized type, such as two-pack polyurethane or epoxy

paint on glass-reinforced polyester (GRP)

c) remove wax coating; and

d) one coat two-pack epoxy primer; and
e) one coat two-pack polyurethane

paint on plastic coatings on metals

f) paint systems on plastics coatings on metals shall be of a *suitable* type

paint on polystyrene

(ceiling tile or sheet)
g) two coats matt utility grade emulsion paint

paint on glass

(glass, glazed brick, terracotta, faïence, ceramic tiles and vitreous enamel)
h) a conventional alkyd gloss or emulsion paint finish system; or
i) a long-life coating of a specialized type, such as two-pack polyurethane or epoxy.

14.8.6 Intumescent paint

Apply *suitable* intumescent paint on structural steelwork, electrical cables, PVC pipes, wood and thatch by brush, roller or spray where specified, to achieve the required fire resistance.

14.9 Paperhanging

wallpaper

a) type, pattern, colour: as specified

preparation

b) ensure plaster surfaces are mature and dry
c) apply a primer coat on very porous plaster only
d) remove loose or blistering paint on previously painted surfaces
e) clean down, fill with *suitable* filler to a smooth surface
f) knot, prime, stop and sand down wood surfaces

hanging

g) hang wallpaper vertically with close-fitted and plumb vertical joints; no horizontal joints are allowed; ensure adjacent sheets match in pattern
h) tightly fit wallpaper against skirtings, ceilings, door frames and windows
i) apply patent wallpaper adhesive to the back of the wallpaper using a brush
j) hang wallpaper while adhesive is still wet, position immediately
k) roll lightly to remove air bubbles
l) wipe spills with damp cloth.

15 Furniture, equipment, stairs, architectural metalwork

15.1 Joinery

15.1.1 Solid wood

hardwood

a) hardwood: *SANS* 1099
b) grade: clear and free of sapwood for visible faces; semi-clear for faces that will not be visible.
c) required marking: trade name, grade (clear grade—red, semi-clear grade—blue) on one piece in each bundle

softwood

d) softwood: *SANS* 1783-3
e) grade: clear and free of sapwood for visible faces; semi-clear for faces that will not be visible.
f) preservative treatment: required for exterior work
g) required marking: trade name on one end, grade on other end (clear grade – black; semi-clear – red) on each piece

laminated timber

h) laminated timber: *SANS* 1460
i) preservative treatment: required for softwood exterior work
j) required marking: application, exposure class, type, appearance and finish on each board

15.1.2 Wood board

plywood and composite board

a) plywood and composite board: *SANS* 929
b) required marking: trade name, exposure class, thickness, grade, preservative treatment on each board

decorative melamine-faced boards (MFB)

c) decorative melamine-faced boards (MFB): *SANS* 1763
d) required marking: *SANS* 1763 + 'MFB' + thickness + abrasion and lamina thickness + Z

fibreboard

e) fibreboard: *SANS* 540
f) required marking: type on each board.

particle board

g) particle board: *SANS* 50312
h) required marking: *SANS* 50312 / *EN* 312

oriented strand board (OSB)

i) oriented strand board (OSB): *SANS* 472

15.1.3 Polymer laminate and solid surfaces

high pressure decorative laminates (HPL)

a) high pressure decorative laminates (HPL): *SANS* 4586
b) required marking: *SANS* 4586 + type + resistance, e.g. HPDL—*SANS ISO* 4586—P333

continuous pressed laminates (CPL)

c) continuous pressed laminates (CPL): *SANS* 1762/4586

polymer solid surfacing material

d) synthetic work surfaces: consisting of acrylic and/or polyester resin and mineral fillers
e) joints: seamless.

15.1.4 Stone surfaces

stone surfacing material

a) stone type, thickness etc. as specified.

15.1.5 Miscellaneous

hardware, fasteners

a) see section 16

adhesives

b) terminology and classification: *SANS* 10183 part 1
c) requirements for structural applications: *SANS* 10183 part 2
d) requirements for non-structural applications: *SANS* 10183 part 3
e) phenolic and aminoplastic resin *SANS* 1349.

steel tubes for furniture

f) see Section 5.2.

15.1.6 Joinery

general

a) joinery: manufactured in climate zone where joinery is to be installed
b) joinery workshop: equipped with modern machinery manned by skilled personnel
c) wood sizes as specified are exact finished sizes
d) overall sizes: check on site before starting any joinery
e) store materials in a safe and dry place
f) apply proprietary materials according to manufacturer's instructions
g) provide materials in single lengths whenever possible; place unavoidable joints over supports
h) joints: mechanical (grooved, doweled, feathered, screwed, proprietary plates) plus adhesive; angle joints: to conceal end grain of natural wood or the edge of laminated or particle board
i) arrises in solid wood: round slightly; vulnerable or exposed arrises: pencil round (3 mm radius)
j) fixings: not visible except inside cupboards or drawers; in open units, or where unavoidable, use screws with matching caps; in natural solid wood surfaces with clear finishes, countersink to 6 mm below surface and glue in matching dowels
k) exposed panel pin heads: punch and fill with stopping; stopping to match wood in case of clear finishes
l) exposed edges of decorative laminate board: post formed
m) use moisture resistant or exterior grade board in wet parts of joinery (e.g. sinks, wash basins) and all plinths
n) edges of raw board cutouts: seal to prevent moisture ingress

grain, pattern

o) grain or pattern: grain of all fitted visible clear-finished timber, or pattern of laminates when relevant, to run vertically on vertical surfaces and parallel to walls on horizontal surfaces, wherever practicable
p) veneer on any one fitting to match in grain and colour; veneer on pairs of doors to match

plinths

q) form plinths with front and back members and full height cross members at <900 mm centres
r) scribe plinths to floor and secure to wall to provide a level platform for carcasses

tops

s) solid hardwood tops: boards in single lengths or, if not possible, with staggered end joints, jointed with grooved, cross-tongued and glued joints or with grooved rebated and glued joints stopped 25 mm back from visible ends
t) moisture resistant particle board tops: faced with high pressure decorative laminates with postformed exposed edges
u) screw tops to framework to allow for movement: with rebated hardwood clamps or metal cleats at 300 mm centres, screwed from underneath

backs

v) backs to fittings: hardboard or as specified
w) bevel all exposed edges

drawers

x) drawers: 12 mm softwood front, sides and back, grooved for 6 mm tempered hardboard bottom, screwed to 16 mm drawer face, or as specified

shop painting

y) deliver joinery on site fully painted, or as specified.

15.1.7 Fixing

a) fix only after space is fully enclosed and secure, all wet work is complete and dry, and airconditioning, lighting, site and stormwater works are complete
b) fix joinery to masonry or concrete walls with *suitable* frame fixing anchors; provide necessary blocking pieces and subframes to take up inaccuracies of wall and floor faces; where exposed hardwood is to be anchor fixed: sink and pellet screw heads
c) in all food handling areas: seal all carcass joints with walls and floors, and cable entries, with silicone beads for vermin proofing

wood cornices, skirtings, quarter rounds, rails

d) skirtings of 68 mm and higher: hollow-rounded at the back
e) fix members to walls with concealed fixings at centres not exceeding 600 mm
f) fix members in long lengths with splayed heading joints and mitred corner joints
g) fix skirtings to walls, not to floor boards; nail quarter rounds to skirtings with panel pins.

shelf bands

h) fix metal shelf bands to walls in a manner that will safely carry a working load of not less than 10,0 kN with a safety factor of 3
i) use stainless steel anchors in areas within 1 km of the coastline
j) start first band 100 mm away from corners of rooms or from other shelves which are at right angles.

15.2 Commercial kitchen cupboards

a) commercial kitchen cupboards: *SANS* 1385
b) required marking on casing of every unit: trade name, production lot
c) sizes: supplier/manufacturer is responsible for checking sizes on site and for providing detail layout *drawings* before any work is started
d) fix cupboards according to manufacturer's instructions
e) seal all joints between work tops and walls
f) inspect all cupboard components after fixing and leave in perfect working order
g) protect cupboards from damage.

15.3 Commercial steel furniture

a) commercial steel furniture: *SANS* 757
b) powder coated finishes: *SANS* 1274.

15.4 Metal counters, balustrades, cladding, signs, street furniture

stainless steel

a) austenitic stainless steel, grade as specified

aluminium

b) anodising: *SANS* 999
c) powder coating: SANS 1274
d) powder coating on external architectural aluminium: SANS 1796
e) surface finishing: SANS 10322

prefinished sheet metal products

f) prefinished sheet metal products: *SANS* 1845

protection

g) remove protective covering only once all other contractors are off site.

15.5 Stairs

Type, structure, treads, balustrades: as specified.

16 Hardware

16.1 General

a) sherardizing on ferrous products: *SANS* 53811
b) electroplating: *SANS* 135/136/2081/2082.

16.2 Fasteners

a) fasteners: *SANS* 1700
b) metal screws for wood: *SANS* 1171
c) masonry anchors: proprietary expansion or chemical type
d) plugs: proprietary plastic
e) mild steel nails *SANS* 820
f) required marking: protective coating on container.

16.3 Locks, latches, catches, bolts

a) locks, latches (domestic type): *SANS* 4

padlocks

b) padlocks: *SANS* 1533

keys

c) supply two keys to every lock; no key must pass more than one lock unless master keyed
d) master and grand master keys: as specified
e) proprietary key control security systems: submit details.

16.4 Hinges

hinges for medium to heavy doors

a) type: butt hinges for doors opening 90°; projecting hinges for doors opening 180° when frames are set back from wall faces.
b) aluminium hinges: high tensile aluminium with fixed stainless steel pins in nylon bushes, and with nylon washers to each knuckle joint
c) doors fitted with closers: provide low-friction bearing hinges
d) size for steel, stainless steel, brass or bronze butt hinges for wood doors in wood frames:

Nominal hinge size L x w x t (mm)	Door leaves not exceeding any of the following		
	Mass (kg)	Width (mm)	Thickness (mm)
70 x 50 x 1,6	16	620	30
85 x 60 x 1,6	20	820	35
100 x 75 x 1,6	30	920	40
100 x 75 2,5	50	920	50
100 x 75 x 3,2	70	1020	50
125 x 100 x 3,2	80	1220	50

e) size for aluminium hinges for aluminium doors, or for doors of other materials in aluminium frames, or to AAAMSA standards:

Nominal hinge size l x w x t (mm)	Door leaves not exceeding mass (kg)	Minimum construction	
		Knuckles	Screws/hinge leaf
100 x 70 x 3	30	3	3
100 x 80 x 3,5	50	5	4
130 x 50 x 3,4	75	Surface mount	3

f) provide fixed pin or security hinges to exterior or security doors opening out
g) number of hinges to
- doors not exceeding 2 040 mm high or 820 mm wide or 30 kg mass: 2
- other doors: 3 for leaves between 2 040 and 2 340 mm high; 4 for leaves between 2 340 and 3 050 mm high
- doors controlled by door closers: 3
- fire doors: …

16.5 Door closers

a) single action overhead door closers *SANS* 1510
b) floor springs, consisting of a floor spring unit set into the floor, bottom and top door strap: of size and finish as specified.

16.6 Pelmets, curtain rails, rods, blinds

a) indoor venetian blinds: *SANS* 947
- cross-straps: flutter-proof
- screws: cadmium-plated.

16.7 Edge, feature, dividing strips

a) edge strips: 3 x 40 mm
b) dividing/feature strips: 3 x 25 mm.

16.8 Sunken door matting

a) place level with floor finish in a sunken panel edged with metal edge strip as specified.

16.9 Number/name plates

symbolic safety signs

a) symbolic safety signs *SANS* 1186

signwriting

b) hand-painted lettering and graphics by tradesman with recognised qualifications and demonstrated experience

installation

c) install signage level and plumb, securely mounted with concealed theft-resistant fixings
d) fix self-adhesive signs free of bubbles and creases.

16.10 Drawer runners, slides

a) type, load capacity, extension: as specified.

16.11 Fixing

a) deliver door hardware items, ready for installation, in individual complete sets for each door, as follows:
   - clearly labelled to show its intended location
   - in a separate dust and moisture proof package
   - including the necessary templates, fixings and fixing instructions
b) verify correct handing on site before supplying
c) fix hardware with matching screws
d) fix locks, handles, latches etc. at 1 000 mm from finished floor level to centre line of hardware
e) ease and adjust locks on completion
f) hand over keys at completion; replace cylinders to which contractor had key access during construction with new cylinders with other keys
g) label all keys with coloured plastic tags
h) plug and screw curtain rail/rod brackets and tie-backs to wall
i) project rails/rods 300 mm past reveals wherever possible, or continuous over windows occurring in series.
j) fix safety signs according to SANS 1186
k) protect hardware during construction.

17 Glazing

17.1 Materials

glass

a) basic soda lime silicate glass (float glass): *SANS* 50572
b) safety and security glass: *SANS* 1263, symbol 1 (impact), 2 (burglar/vandal) or 3 (bullet) engraved permanently and visible after glazing on each sheet
c) pattern glass: when relevant, discuss direction of pattern before cutting
d) low-emissivity glass (low-e): spectrally selective coated glass *BS EN* 1096
e) glass louvres: 6,5 mm NS safety glass, regardless of length or width, with polished edges
f) frameless doors: 10 mm thick safety glass for internal use; 12 mm thick safety glass for external use
g) insulated glass (double glazing): factory-prepared sealed insulated glazing units (SIGU), consisting of two panes of clear float glass separated by a sealed spacer to entrap a dehydrated air gap, indelibly mark-bearing with the trade name of the assembler/manufacturer, visible after installation
h) work on glass: *SANS* 1817

sealants

i) sealants: see section 6.

17.2 Glazing

Invoked standard whenspecified*: SANS* 10137 The installation of glazing materials in buildings.

17.2.1 Glazing in frames

Applicable standard: *SANS* 2001-Construction Works Part CG1: Installation of Glazing.
Specification data:
a) glass type, size, thickness: see Section 17.1
b) frames for glazing: see Section 10
c) note on drawing: “type, size, thickness and marking to *SANS* 10400-N”.

17.2.2 Structural glazing

gaskets and sealants

a) elastomeric structural glazing and panel gaskets: *SANS* 635
b) structural sealants to be compatible with extrusion surface, glazing tape and glass, backed by regular test reports regarding adhesion of sealant to aluminium frame in accordance with ASTM/C 794-80 (standard test for adhesion-peel of elastomeric joint sealants)
c) adhesion of sealant to aluminium, whether anodised or organic coated:
   - capable of maintaining an ultimate adhesive bond strength between aluminium and sealant of 0,828 MPa
   - design stress not to exceed 0,138 MPa
   - structural sealant glazing contractor to check adhesion of cured sealant on representative test joints on site before proceeding with installation
   - checks to be carried out periodically throughout installation period.
d) use only freshly manufactured sealant; use only compatible accessory materials as recommended by sealant manufacturer, for example degreasing solvents, primers, back-up material with integral bond breaker, spacer and setting blocks
e) fill sealant cavities completely

quality assurance

f) ensure disciplined quality assurance during all stages of fabrication and installation
g) factory glazing is preferred over site glazing.

17.2.3 Protection and cleaning

a) protect glass against harmful splashes and weld splatter
b) clean glass as soon as practicable after installation with mild soap and water
c) ensure cleaning materials are not harmful to plastic glazing materials and glazing compounds.

17.3 Mirrors

a) silvered float glass mirrors: *SANS* 1236, class A
b) privacy mirrors: clear glass with mirrored venetian strips for visual privacy and/or security
c) stainless steel mirrors: 0,9 mm thick bright annealed mirrored stainless steel
d) fasten glass mirrors with chromium plated mirror screws to wall and allow 3 mm air space at back for ventilation, or fix mirrors with vertical strips of double sided tape to allow for ventilation; support mirrors larger than 1 m^2 with additional clips, anchors or beads
e) fasten stainless steel mirrors with screws and/or glue in acceptable manner.

18 Drainage, sewerage, water and gas supply, fire equipment, sanitary plumbing

18.1 Roof eaves drainage

18.1.1 Materials

galvanized steel

a) hot dip galvanized steel sheet: *SANS 3575/4998:*
   - 0,6 mm for gutters up to 15 000 mm² (cross-sectional area) and domestic downpipes
   - 0,8 mm for gutters up to 30 000 mm²
   - 1,0 mm for gutters up to 50 000 mm²
   - 1,2 mm for box gutters with a maximum girth of 1225 mm
b) nails, bolts and screws: zinc-plated or sherardized steel
c) brackets: mild steel strip hot dip galvanized *SANS* 121 after manufacture:
   - 32 x 3,5 mm for gutters up to 15 000 mm²
   - 40 x 5,0 mm for gutters up to 30 000 mm²
   - 40 x 6,0 mm for gutters up to 50 000 mm²

copper

d) copper sheet:
   - 0,6 mm for gutters up to 15 000 mm²
   - 0,8 mm for gutters up to 30 000 mm²
   - 1,0 mm for gutters up to 50 000 mm²
   - 1,2 mm for box gutters with a maximum girth of 1225 mm
e) brackets, nails, bolts and screws: copper or stainless steel

aluminium

f) aluminium sheet:
   - 0,7 mm for gutters up to 15 000 mm²
   - 0,8 mm for gutters up to 30 000 mm²
   - 0,9 mm for gutters up to 50 000 mm²
   - 1,0 / 1,2 mm for box gutters with a maximum girth of 1 225 mm
g) brackets, nails, bolts and screws: aluminium alloy or stainless steel

PVC

h) PVC-U gutters and downpipes: *SANS* 11
   - brackets: aluminium alloy.

18.1.2 Gutters and downpipes

downpipes

a) with the necessary offsets and shoes

18.1.3 Installation

a) according to manufacturer's instructions where relevant
b) lap sheet metal gutter lengths >20 mm; seal with *suitable* sealant over full lap before riveting

c) lay gutters in brackets to slight fall to outlets, nailed/screwed to roof timber at 2 m maximum centres in the case of sheet metal gutters, at 1 m in the case of U-PVC gutters, and at angles and outlets
d) bolt sheet metal gutters to brackets close to underside of gutter bead with 6 mm diameter gutter bolts
e) take measures to accommodate occasional overflow from eaves and box gutters, e.g. a weir overflow in the stop-end
f) ensure gutters fall to outlets – no ponding is allowed
g) fix downpipes to walls, 25 mm clear of finished wall face, seam towards wall when relevant, with 25 x 1,6 mm hot dip galvanized mild steel holderbats, bolted around pipe in two halves, and with 6 mm diameter hot dip galvanized steel spiral nail driven into wall, at least twice per downpipe length and at 2 m maximum centres
h) where required, fit rainwater pipes to stormwater drains with sheet metal flange to fit into socket of drain pipe, riveted and soldered to pipe; join pipes to drains with cement mortar.

18.2 Flat concrete roof, balcony and floor drainage

18.2.1 Rainwater outlets

a) type: patent outlet with grating, or pipe without grating as specified
b) patent outlet type:
   - ductile iron consisting of flanged funnel-shaped head with outlet threaded to take standard mild steel hot dip galvanized pipes, and with removable domical gratings for roofs or flat gratings for car parks, secured by centre hook bolt
   - cast outlet heads with necessary pipework into concrete, at such a level that ponding does not occur after waterproofing
c) outlet pipe without grating: 75 mm diameter minimum or one size larger than required by building regulations.

18.2.2 Floor outlets

a) grating: removable and capable of taking heavy vehicle loading
b) grease and solids trap: easy-clean
c) with tapered bottom for installation on 100 mm diameter pipe or clamp coupling
d) set at such a level that ponding does not occur after flooring is installed.

18.2.3 Outlet downpipes

a) PVC-U pipes: *SANS* 967
b) hot dip galvanized steel pipes with screwed ends: *SANS* 62
c) hot dip galvanized malleable cast iron fittings: *SANS* 14.

18.3 Stormwater drainage

18.3.1 Earthworks

Applicable standard: SANS 2001-Construction Works Part DP1: Earthworks for buried pipelines and prefabricated culverts

18.3.2 Stormwater drainage

Applicable standard: SANS 2001 Construction Works Part DP5: Stormwater drainage

pipes

a) types of:
b) concrete pipes and associated fittings: *SANS* 677
c) fibre cement pipes and associated fittings: *SANS* 819

d) PVC-U pipes and associated fittings: *SANS* 791/1601
e) GRP pipes and associated fittings: *SANS* 1748-1
f) PP pipes and associated fittings: *SANS* 8773
g) PE pipes and associated fittings: *SANS* 4427
h) diameters: as specified

culverts

i) precast concrete culverts *SANS* 986 type portal.

18.3.3 In situ concrete stormwater channels

a) concrete: grade 30
b) cast rainwater channels and spill basins on well rammed earth filling
c) lay channel floors to even fall of 1:250 minimum and as specified
d) neatly form angles and sweeps around gulleys without changing channel profile
e) form stop-ends at tops of gradients
f) finish channels on exposed surfaces with 2:1 sand:cement plaster, trowelled smooth with rounded salient angles
g) cast rainwater channels with isolation joints against walls and with keyed or doweled construction joints at 1,8 m maximum centres along it's length
h) cast concrete spill basins: to shape, size and finish as specified.

18.3.4 Agricultural drains

a) pipes: 100 mm diameter agricultural drain pipes
b) pattern: main drain with branch spreader drains to pattern and lengths
c) trenches: 600 mm wide x >700 mm deep at >2 m apart
d) laying:
   - on 150 mm thick beds of clean, hard, durable stone graded from 35—75 mm, and covered after laying with same to 280 mm above tops of pipes
   - lay pipes with open joints
   - cover each joint with a flat stone to prevent infiltration of soil
   - plug lower end of main drain with 2:1 cement mortar
e) filling: cover stone filling in trenches with *suitable* plastic sheeting and fill trenches with earth filling, lightly rammed.

18.4 Sewerage

18.4.1 Earthworks

Applicable standard: SANS 2001-Construction Works Part DP1: Earthworks for buried pipelines and prefabricated culverts.

18.4.2 Sewers (>160 mm)

Applicable standard: SANS 2001- Construction Works Part DP4: Sewers
Specification data:
a) types of pipe, diameter, gradient etc.: as specified.

18.4.3 Sewers for buildings

Applicable standard: SANS 2001-Construction Works Part DP7: Sewers for Buildings
Specification data:
a) type of pipe, diameter, gradient etc.: as specified.

18.4.4 Surface boxes, manhole covers, gulley gratings, frames

a) polymer concrete surface boxes, manhole and inspection covers, gulley gratings and frames: SANS 1882, mark-bearing
b) cast iron, cast steel, rolled steel combined with concrete gulley tops and manhole tops for vehicular and pedestrian areas: *SANS* 50124 / EN 124, mark-bearing
c) installation: top of dished gullies >150 mm above finished ground level or 50 mm above permanent paving.

18.4.5 Grease interceptors

a) material, type, capacity and size: to approval of the local authority or as specified.

18.4.6 Pit latrines

a) construction: masonry, patent precast concrete, patent polymer
b) waterless ventilated improved pit (VIP) latrine: consisting of a structurally lined and ventilated underground pit, floor slab, ventilated wall enclosure with roof and door, toilet pedestal, toilet seat and lid
c) masonry type: as described in NHBRC Home Building Manual Part 11 and relevant details, internal size of pit 750 x 1 500 x 2 000 mm minimum deep; exposed end of floor slab covered with precast concrete panels
d) patent type: installed to manufacturer's instructions or to the requirements of an active Agrément certificate
e) to the approval of the local authority.

18.4.7 Conservancy tanks, septic tanks and french drains

a) conservancy tanks, septic tanks and french drains: SANS 10400-P, of type, construction, capacity as specified.
b) patent type installed to manufacturer's instructions or to the requirements of an active Agrément certificate.

18.5 Water supply

18.5.1 Earthworks

Applicable standard: SANS 2001-Construction Works Part DP1: Earthworks for buried pipelines and prefabricated culverts.

18.5.2 Below ground medium pressure pipelines

Applicable standard: SANS 2001-Construction Works Part DP2: Medium pressure pipelines
Specification data:

a) type of pipe, size etc.: as specified.

18.5.3 Below ground water installation for buildings

Applicable standard: SANS 2001-Construction Works Part DP6: Below ground Water installations for Buildings.
Specification data:

a) type of pipe, size etc.: as specified.

18.5.4 Above ground water installation

Invoked standard when required: *SANS* 10252 Water supply and drainage for buildings.

materials

a) pipes, and associated fittings recommended by pipe manufacturer: material as specified, supplied from one source
b) water supply and distribution system components: *SANS* 1808
c) float valves *SANS* 752

installation

d) pipes: according to manufacturer's instructions
e) discuss measures to avoid unsightly pipework before any chasing or cutting for pipework is started
f) fixing of pipes <20 mm: chased or surface fixed as specified
g) fixing of pipes >20 mm: surface fixed or run in ducts
h) surface fixing on internal walls: in straight horizontal and vertical runs to internal walls only, after plastering, with hot dip galvanized cast iron holderbats *SANS* 1209, or plastic holderbats for copper or polypropylene pipes, at centres *according to manufacturer's instructions;* leave clear space of 15 mm between pipe and finished wall
i) surface fixing on external walls: prohibited except for a short distance of vertical rising main from ground level to floor level
j) chasing:
   - not in wall faces that are to receive roof flashing (see Section 7 Roof coverings)
   - in solid masonry only, not deeper than one third of wall thickness vertically and not more than one sixth of wall thickness horizontally; avoid horizontal chasing where possible
   - in walls constructed of structural masonry and hollow blocks: only with permission, or locate pipes in cavities during construction
   - ensure chases, holes and recesses are made so as not to impair strength or stability of walls, or reduce fire resistant properties of wall
   - fill chases in masonry walls with class I or II mortar once pipes are in position
k) fasten pipes firmly to roof timber
   - with hot dip galvanized mild steel or copper pipe clips screwed on
   - polypropylene hot water pipes: supported continuously
   - polypropylene pipes: not closer than one metre from hot water geysers
l) use bends in preference to elbows if practicable; if a reduction in size of pipe takes place at an angle, the bend or elbow must be the size of the larger pipe
m) no air may lodge in pipes; maintain a proper fall
n) provide for expansion in long lengths of pipes
o) insert long- screws or suitable couplings at convenient points to provide for alterations and repairs
p) provide unions at in- and outlets to geysers

testing

q) fill entire water reticulation system with water
r) ensure air is evacuated
s) pressurise water in system to one-and-a-half times the expected design working pressure by means of a pump and maintain pressure for four hours
t) inspect system for leakages and repair
u) inspect again after connecting to mains.

18.5.5 Water storage tanks

v) accessories: inlet, outlet, overflow pipe connections, float valve of same bore as supply pipe
w) drip tray in roof space: *SANS* 1848

18.6 Electric geysers and solar water heaters

18.6.1 Electric geysers

a) geysers: *SANS* 151
b) required marking: capacity, working pressure, mounting position, design, standing loss per 24h in kWh, moisture resistance class, colour coding (yellow—50 kPa, blue—100 kPa, black—200 kPa, brown—300 kPa, red—400 kPa, green—600 kPa)
c) install: to SANS 10254 and according to manufacturer's instructions, including drip trays
d) position geysers in roof spaces on firm timber bearers near ceiling hatch so that electric element can be reached through the hatch from a step ladder, whenever possible
e) preset geyser thermostat to 50° C

18.6.2 Solar water heaters

a) domestic solar water heaters: *SANS* 1307, mark-bearing.

18.7 Gas supply

Gas installation: *SANS* 10087.

18.8 Fire equipment

a) all fire equipment to approval of local authority

fire hydrants

b) fire hydrants: *SANS* 1128 part 1

fire hose reels

c) fire hose reels: *SANS* 543, with 30 m long x 20 mm diameter light duty rubber fire hose, fixed base, couplings, connections, branch pipes and nozzles: *SANS* 1128 part 2
d) fix reels against walls with *suitable* frame anchors or expansion bolts at a height of 2 100 mm from floor to spindle, or to height as specified
e) enclose reel in security cupboard with clear acrylic cover and *suitable* closer when specified

portable fire extinguishers

f) general purpose, non-refillable fire extinguishers: *SANS* 1322 and mark-bearing
g) water, foam or dry powder rechargeable extinguishers: *SANS* 1910
h) CO_2 type extinguishers: portable rechargeable carbon dioxide extinguishers: *SANS* 1567 and mark-bearing
i) BCF type extinguishers: halogenated hydrocarbon fire extinguishers: *SANS* 1151 and mark-bearing
j) hang extinguishers on wall hooks screwed and plugged to wall
k) enclose in security cupboard with clear acrylic cover and *suitable* closer when specified.

18.9 Sanitary plumbing

18.9.1 Sanitary appliances

a) fitted with waste, plug and chain as required

baths

b) acrylic baths: *SANS* 1402 / 50198
c) handles: when specified

basins

d) glazed ceramic wash-hand basins: *SANS* 497

e) stainless steel wash-hand basins: *SANS* 906

wash troughs

f) stainless steel wash troughs: *SANS* 906
g) concrete wash troughs
   - reinforced concrete, with reeded front
   - drainers to be of reinforced concrete with lip to fit over side of trough and fixed to trough with copper dowels and to wall with bracket supplied
   - pedestals to be of reinforced concrete
   - bed pedestals on floor, and trough on pedestals, with 1:2 cement-sand mortar

water closets

h) glazed ceramic water closets: *SANS* 497

flushing cisterns

i) glazed ceramic flushing cisterns: *SANS* 497
j) plastic flushing cisterns: *SANS* 821
k) cistern flush valves: *SANS* 1509

urinals

l) glazed ceramic urinals: *SANS* 497
m) stainless steel urinals: *SANS* 924

sinks

n) glazed ceramic sinks: *SANS* 497
o) stainless steel sinkswith draining boards for domestic use: *SANS* 242
p) stainless steel sinks for institutions: *SANS* 907

shower enclosures

q) shower enclosures
   - shower enclosures for domestic purposes: SANS 549
   - glass: *SANS* 1263
   - anodizing: *SANS* 999
   - powder coating: *SANS* 1274/1578/1796

bains marie

r) bains marie and hot cupboards: *SANS* 1174.

18.9.2 Taps, valves, showerheads

a) water taps (metallic): *SANS* 226, class as suitable to dynamic supply pressure
b) water taps (plastic bodies): *SANS* 1021, class as suitable to dynamic supply pressure
c) taps for cold and hot water: mark-bearing blue and red respectively
d) aerators: required
e) wall type taps: with sliding flange
f) single control mixer taps: *SANS* 1480
g) flush valves: *SANS* 1240, type as specified.
a) showerhead: type as specified.

18.9.3 Traps

a) plastic waste traps: *SANS* 1321, part 1
b) rubber waste traps: *SANS* 1321 part 2.

18.9.4 Miscellaneous

a) holders, shelves, cabinets: as specified

18.9.5 Fixing of sanitary fittings generally

a) leave protective wrappings in position for as long as possible
b) fix in a manner that will facilitate future removal
c) install fittings to manufacturer's instructions
d) fix appliances securely; use manufacturer's brackets and fixing methods wherever possible; use frame anchors for fixing brackets – do not screw and plug
e) bed water closet pans in 1:3 cement-sand mortar; bed squatter pans in grade 10 concrete
f) brick up open sides of build-in type baths
g) bed acrylic baths in 1:5 cement:sand mortar on three rows of bricks, or bed solidly on dry river sand or concrete
h) fix shower heads at 2 100 mm above shower floor level
i) fix urinals at 610mm from floor to front lip of urinal bowl
j) seal joints.

19 Electrical works

Invoked standard when required: *SANS* 10142–The wiring of premises.

19.1 Earthworks

Applicable standard: SANS 2001-Construction Works Part DP1: Earthworks for buried pipelines and prefabricated culverts.

19.2 Cable ducts (underground)

Applicable standard: SANS 2001-Construction Works Part DP3: Cable ducts.

19.3 Materials and installation

19.3.1 Wiring

conduits

a) conduits: *SANS* 950/60614/61386
b) embed in wall chases with cement mortar and clamps
c) do not chase in wall faces that are to receive roof flashing (see Section 7 Roof coverings)
d) fix on wall surfaces and in roof spaces with clamps
e) embed in concrete surface beds
f) do surface fixing level, plumb, neatly and in straight lines

conductors

g) PVC isolated copper conductors: *SANS* 150

electric cables

h) PVC armoured copper cable: *SANS* 1574/1411

distribution board and meter cabinets

i) prepainted pressed steel with door and latch: *SANS* 1973, with isolator, earth leakage protection unit: *SANS* 767, and circuit breakers as required
j) build in cabinets in walls, or surface mount, as specified
k) label all functions in distribution board and provide legend card

switches and sockets

l) switches: *SANS* 60669, including dimmer, remote-control, isolating and time-delay switches

plug and socket systems

m) 3 pin 16 Amp wall switch sockets: *SANS* 164
n) boxes and enclosures with covers: *SANS* 1085/60670
o) build in boxes for switches at 1 500 mm above floor level or as specified
p) build in boxes for sockets at 300 mm above floor level except above work tops where these must be 1 200 mm above floor level or as specified
q) telephone or television points: build in boxes at 300 mm above floor level or as specified; connect with conduit to roof space and through to roof overhang nearest telephone connection or television antenna; provide conduit with draw wire

19.3.2 Fittings

luminaires

a) type: as specified

b) luminaires: *SANS* 60598, complete with lamps, ballasts, control gear and earth terminals; control gear within luminaires to be mark-bearing
c) fix luminaires at as late a stage as possible, and protect from damage
d) earth all luminaires

stove, hob, oven, cooker hood

e) stoves: *SANS* 153
f) commercial kitchen extraction systems: *SANS* 1850.

19.4 Testing

a) inform local authority at completion of electrical installation for inspection
b) provide a copy of the electrical test certificate before handing over.

19.5 Lightning protection

To *SANS* 10313/*SANS* 61024.

20 Mechanical works

20.1 Installation

a) install equipment and services level and plumb, fix securely and organise reticulated services neatly
b) fix directly to structure where possible, independantly of suspended ceilings; trim around holes or penetrations through non-structural elements
c) maintain fire and acoustic rating integrity of false ceilings etc.
d) allow for movement in both structure and services
e) conceal cables, ducts, trays, pipes etc. unless installed in plant spaces, ceilings, riser cupboards, etc. or as specified
f) provide heavy items of equipment with permanent fixtures for lifting as recommended by the manufacturer.

20.2 Building penetrations

a) do not embed pipes that operate under pressure in concrete or surfacing material
b) seal penetrations through fire rated elements according to fire regulations
c) seal penetrations through non-fire rated elements around conduits and sleeves, and around cables within sleeves; if the building element is acoustically rated, maintain the rating
d) seal roof penetrations with metal upstand flashings and counter flashings – do not use fabric reinforced paint or bitumen
e) provide primed metal or PVC sleeves with diameter sufficient to allow 12 mm space around interior pipe (or pipe insulation) or cable.

20.3 Location and access

Locate and arrange all services and equipment so that:

a) tray and overflow pipe are provided to each tank, hot water heater and storage vessel
b) fan coil units, valves or other potential leak sources are not located over rooms containing water sensitive equipment or finishes
c) inspection and maintenance operations can be carried out with minimum inconvenience and disruption to building occupants or damage to the building structure or finishes
d) services and equipment are readily accessible for inspection and maintenance and arranged so that inspection and maintenance can be carried out in a safe and efficient manner
e) access is provided by catladders and catwalks from floor level to plant (including high level tanks) requiring regular inspection and maintenance, and/or where height of ceiling prohibits access from standing ladders
f) equipment that requires inspection and maintenance in false ceilings with removable tiles is accessible, and, where this is not the case, by means of access panels
g) the number of access panels is kept to a minimum – coordinate with other trades to use common access panels where feasible

20.4 Vibration suppression

Minimise transmission of vibration from rotating equipment to building elements by means of flexible connections, inertia bases, restriction of maximum rotation speed to 1500 r/min, isolation mountings or spring mountings.

21 External works

21.1 Paving

Invoked standard s when specified*:*

Precast concrete paving blocks—laying manual. The Concrete Masonry Association

Technical guide: Clay Pavers & Paving—selection and construction guidelines. Corobrik

Applicable standard: *SANS* 1200 MJ Standardized specification for civil engineering construction: Segmented paving.

21.1.1 Materials

units

a) precast concrete segmental paving blocks: *SANS* 1058
b) burnt clay paving units: *SANS* 1575
c) precast concrete paving slabs: *SANS* 541.

in situ concrete

d) in-situ concrete: see CONCRETE WORKS

sand for bedding and jointing of flexible paving

e) free of soluble salts or contaminants likely to cause efflorescence or staining
f) moisture content: 5 – 8 %
g) grading limits:

Sieve size (mm)	% passing
9,25	100
4,75	95 –100
2,36	80 –100
1,18	50 – 85
0,60	25 – 60
0,30	10 – 30
0,15	5 – 15
0,075	0 – 10

h) jointing sand: to pass a 1,18 mm sieve, containing 10 – 50 % material passing a 0,075 mm sieve

mortar for rigid paving

i) sand with fineness modulus in the region of 2,2 – 4,0 to minimize permeability
j) mortar: SANS 2001-Construction Works Part CM1, class I external, class II internal
k) use minimum water

infill concrete

l) infill concrete: grade 25/10 .

21.1.2 Preparation

subgrade

a) excavate to achieve finished levels and falls as specified
b) remove soft spots and biodegradable material and replace with suitable filling material
c) complete installation of all sub-soil drainage pipes

d) compact to 90% *MOD AASHTO*; take special care to compact trenches and around manholes – stabilise with 5% cement prior to compaction if necessary

sub-base for flexible paving

e) sub-base material and construction: as specified by a *competent person*
f) form paving surface profile on finished surface of sub-base – do not make up irregularities in surface with bedding sand

concrete sub-base for rigid paving

g) sub-base concrete: grade 10 as described under CONCRETE WORKS, to thickness and with reinforcement as specified

weed killer

h) treat area to be paved with *suitable* weed killer when specified
i) take care that trees or shrubs that have to be retained are not affected

levels, falls, pattern

j) ensure kerbs and edge restraints are complete and levels and falls are correct
k) agree on pattern, edges, cutting of units etc. before laying.

21.1.3 Laying

flexible block/brick paving

a) keep long axis square to line of traffic flow
b) lay pavers true to line and level on loose and evenly spread sand bedding of compacted thickness 25 ± 10 mm
c) lay full units first
d) joints: 2 – 6 mm wide
e) fill areas in which a full unit will not fit with clean-cut units or, if less than 25 % of a full unit, with concrete left for 24 h before compacting
f) compact surface as soon as practicable, not closer than 1 m from free edges or working faces, with high frequency, low amplitude mechanical flat plate vibrator capable of producing a centrifugal force of 7 – 16 kN at a frequency of approximately 75 – 100 Hz on a plate size of 0,35 – 0,5 m^2; make sufficient passes to compact sand bedding to 15 – 35 mm thickness; make at least two passes
g) brush joint filling sand into joints after first pass; remove excess sand on completion
h) on grades exceeding 8%, cast concrete anchor beams across road as specified

flexible slabs

i) lay slabs on 50 mm clean river sand
j) joints: fill with class I cement mortar and strike off with jointer, or leave open when specified

rigid block paving

k) clean base concrete
l) set out pavers with string, templates or gauge rods, or dry lay entire area
m) brush 1:1 cement:fine sand slurry over surface
n) dip clay pavers with high absorption rate in water before laying; otherwise do not wet pavers
o) butter each paver, bed solid in mortar, and fill joint in one operation
p) tool joints flush or bucket handle
q) form 10 mm movement joints at 4,5 m intervals at right angles in two directions, and against or edge restraints like buildings, manholes and columns
r) fill movement joints with *suitable* sealant – see section 7

in situ concrete paving

s) see section 2.4 Concrete Floors on the Ground

cutting

t) cut pavers with a masonry disc cutter

accuracy

u) gradual allowed deviation under 3 m straight edge: 10 mm maximum
v) allowed difference in level between adjacent units: 3 mm maximum
w) allowed deviation of line of pattern: 15 mm in 3 m maximum.

cleaning

x) leave paving clean and free from stains.

21.2 Concrete culverts, kerbs, channels

21.2.1 Materials

a) precast concrete culverts: *SANS* 986, type portal
b) kerbs, edgings and channels: *SANS* 927
c) mortar: SANS 2001-Construction Works Part CM1, class I
d) bedding material: crushed stone, sinter, slag, sand or *suitable* porous material with a particle size of 13 mm maximum
e) backing concrete: grade 15
f) sealant: see Section 6 INSULATION.

21.2.2 Laying

a) excavate trenches for kerbs and channels to below required level and refill with >70 mm of bedding material
b) compact to required level and slope to density of >90 % *MOD AASHTO*
c) bed kerbs and channels on 50 mm bedding material with 10 mm joints filled with mortar; wet joints well before jointing
d) lay kerbs and channels in 1 000 mm maximum lengths for straight or curved kerbs with a radius of >20 m
e) lay in 500 mm maximum lengths for curved kerbs with a radius between 4 and 20 m, or 300 mm maximum for radii up to 4 m
f) provide 12 mm wide movement joints in channels at intervals not exceeding 20 m and leave open or fill with polysulphide when dry as specified
g) support backs of kerbs with well-compacted backing concrete
h) fill behind kerbs with suitable material in layers not exceeding 150 mm, wet and compact to 90 % *MOD AASHTO* density
i) protect concrete units against damage and discolouration.

accuracy

j) maximum deviation of any edge, centre line or vertical surface from specified position: 25 mm
k) maximum allowed deviation of any invert level: 10 mm.

21.3 Concrete retaining blocks

Invoked standard when required: *SANS* 207 Design and construction of reinforced soils and fills soil reinforcement

Invoked standard when required: *SANS* 10409 Design, selection and installation of geomembranes

Invoked standard when required: Concrete Retaining Block Walls—Installation Manual, published by the Concrete Manufacturer's Association

blocks

a) concrete retaining blocks: *SANS* 508

geomembranes

b) thermoplastic geomembranes: *SANS* 1526

preparation

c) ascertain position and depth of existing buried services before excavating; avoid damage
d) prepare level and compacted earth foundation trench of depth as specified
e) in case of walls not higher than 1,2 m, lay 300 x 75 mm deep layer of compacted granular base material like crushed rock or gravel
f) in case of walls higher than 1,2 m, lay concrete strip foundation of 150 mm thick and of width as specified
g) install behind wall when specified:
   - perforated drain pipe with positive gravity flow to outlets
   - aggregate blanket drain
   - geofabric covering

placing

h) stack units by hand, without mortar, true to line, level and in pattern as specified
i) place suitable granular backfill and compact
j) lay geofabric reinforcement when specified
k) clean wall, clear debris and pockets, ready to accept planting.

21.4 Gabions

Applicable standard: SANS 1200 Standardized specification for civil engineering construction Section DK: Gabions and pitching

materials

a) hexagonal woven steel wire mesh gabions and revet mattresses: *SANS* 1580

laying

a) prepare bases
b) assemble cages on site and fill with clean, hard, unweathered boulders or rock fragments with minimum size two-thirds of basket thickness or 300 mm, whichever is smallest.

21.5 Fencing

21.5.1 Line wire and chain-link mesh fencing

a) zinc-coated fencing line wire (plain and barbed): *SANS* 675, of zinc coating class light for inland areas, heavy for coastal or corrosive regions
b) chain-link (diamond) mesh fencing and wire accessories: *SANS* 1373 / 675 / 10244

straining eye bolts

c) straining eye bolts: 10 mm diameter x 300 mm threaded mild steel bolt with eye, washer and nut, hot dip galvanized to *SANS* 121 / *SANS* 14713
d) permanent wire pullers:prohibited

posts, stays, standards, droppers

e) mild steel posts, stays, standards, droppers: *CKS* 82

f) precast concrete posts: prestressed alkali aggregate reactive concrete
g) wood posts, stays and droppers, preservative treated to *SANS* 1288 hazard class H4: hardwood *SANS* 457-3, 145—174 mm diameter posts and stays, 32—50 mm droppers
h) posts provided with necessary holes for hinges, straining bolts, binding wire etc.

erection

i) clear fence route; roughly level to obtain uniform gradient
j) excavate holes 400 x 400 x 800 mm deep for posts and 300 x 300 x 600 mm deep for stays
k) plant posts and stays in grade 15 concrete to 50 mm above ground level with chamfered top surface: at gates, ends, corners, intersections and at intermediate distances not exceeding 90 m, or at acute changes in level
l) provide stays to all straining posts in direction of line of fence
m) drive standards 450 mm deep into ground at 3 m centres
n) thread straining wire through holes in standards at bottom, top and intermediate centres not exceeding 300 mm for wire fencing, or at intermediate centres not exceeding 600 mm for wire mesh fencing; bind around posts or straining eye bolts, and strain
o) bind droppers to straining wire with binding wire
p) cover with wire mesh when relevant, tension and bind securely to straining wire at every third mesh; join roll ends with a spiral to form a continuous fence; tie or clip welded mesh to straining wire at 300 mm centres; trim roll ends by overlapping 100 mm
q) in the case of PVC-coated wire, take care not to crack or puncture the coating
r) if ground is soft or post or stay cannot be securely fixed: improvise
s) make good any damaged protective coatings
t) do not cut preservative treated timber where it will be in the ground
u) check fence on completion; grease hinges; cut off projecting bolt threads; burr over bolt ends to prevent nut removal, and coat with bitumen paint.

fencing gates

v) steel gates with tubular frames and wire or mesh filling (for farm and domestic use): *CKS* 146
w) hang gates on adjustable hinges
x) provide gates with steel spring or U catches, drop bolts and locking devices
y) drop bolts to drop in *suitable* length of pipe set in concrete to 30 mm above ground level

finish

z) finish to gates and accessories: two coats bituminous aluminium paint *SANS* 682 grade 1 inland; hot dip galvanized *SANS* 121/14713 in *the coastal region* or corrosive atmospheres.

21.5.2 Weld mesh fencing

a) material, mesh size, finish: as specified
b) erection: according to manufacturer's instructions.

21.5.3 Barbed tape fencing

a) barbed tape security barriers: *SANS* 1620, of material, form as specified
b) erection: according to manufacturer's instructions.

21.5.4 Palisade fencing

steel

a) steel palisade fences and gates: *SANS* 301-12
b) pale points: forked or spiked
c) panels: 3 m length, safety bolted to steel posts
d) pales for heights up to 2,4 m for general purposes: corrugated and angle

e) pales for heights of 3,0 m and 3,6 m for security purposes: corrugated
f) plant posts in grade 15 concrete footings at 3 m centers or according to manufacturer

concrete

g) posts, rails and pales: steel reinforced precast concrete grade 30
h) bolts: galvanized carriage bolts
i) plant posts in 600 x 600 x 600 mm concrete base at approximately 2 m centres
j) bolt rails to posts, two per bay
k) bolt pales to rails, nine per bay
l) countersink bolts on both sides and grout holes solid
m) all to manufacturer's instructions.

21.5.5 Electric fencing

a) electric fencing system: stranded wire on plastic or porcelain isolators on brackets, complete with energizer, batteries etc. as required
b) wire: galvanized A grade high-tensile steel inland, or stainless steel for *coastal areas* or corrosive atmospheres
c) electric fencing safety: *SANS* 10222-3 / 60335-2.

21.5.6 Gate automation

a) electric gate motor with battery backup, crush protection, fine position control, remote control
b) theft-resistant cages with padlock are required when specified.

21.5.7 Private swimming pool fencing

a) private swimming pool fencing: *SANS* 1390, of height and protective coating as specified.

21.6 Precast concrete panel walling

a) precast concrete posts and panels: *SANS* 1372
b) plant posts 500 mm deep in grade 15 concrete at approximately 1,6 m centres
c) slip in panels between posts, and level.

21.7 Swimming pools

Invoked standard when required: *SANS* 10209 The design and construction of swimming pools
a) swimming pool: size, shape and finish as specified.

21.8 Timber decking

21.8.1 Materials

poles

a) softwood: *SANS* 457-2
b) hardwood: *SANS* 457-3
c) preservative treated to *SANS* 1288 hazard class H3 when above ground, class H4 when in ground contact
d) top diameter: colour marked
e) required marking: metal tag with hazard class on each pole or bundle

sawn structural softwood

f) sawn softwood *SANS* 1783-2 grade 5

sawn structural hardwood

g) sawn hardwood (Eucalyptus) *SANS* 1707 grade 5

structural laminated timber

h) structural laminated timber *SANS* 1460
i) exposure class: 1 (exterior)
j) type: G (stocklam)
k) stress grade: 5
l) preservative treatment of softwood: *SANS* 1288 hazard class H3
m) fire retardent treatment: when specified
n) required marking: on each piece a combination of code letters: application, exposure class, type, appearance and finish, stress grade, e.g. S2GP5.

deck boarding

o) softwood: industrial planed wood: *SANS* 1783-3
p) hardwood: planed strip flooring: *SANS* 281
q) shape: rectangular (not tongue-and groove) with arrised edges
r) in long lengths
s) preservative treatment: *SANS* 1288 hazard class H3

fixings

t) brackets, shoes, threaded rod etc: mild steel, hot dip galvanized to *SANS* 121/*SANS* 14713
u) nails, bolts, nuts, washers: *SANS* 1700, hot dip galvanized to *SANS* 121/*SANS* 14713
v) screws: countersunk head to *SANS* 1171, of material as specified..

balustrades

w) material, construction as specified.

21.8.2 Installation

a) poles: plant in ground, or fix on brackets cast into concrete footings as specified
b) plant poles in 300 mm diameter holes in ground on a bed of gravel or concrete; fill holes with gravel, tamp and top up with a collar of 200 mm concrete, shaped sloping away from pole
c) bolt the structure of poles, beams, joists, cross bracing and strutting to comply with *SANS* 10082; recess bolt heads, washers and nuts
d) space joists at centres less than 20x deck plank thickness
e) fix decking boards at right angles to joists with a space of 7 mm between boards
f) fix boards with screws with countersunk heads; plug with matching wood when specified
g) pre-drill holes if wood tends to split
h) support board header joints on double joists; leave space for ventilation between board heads
i) protect end grain with metal caps when specified
j) chamfer or round top surfaces of rails to assist the shedding of rainwater; round all sharp edges.

21.8.3 Wood finish

a) seal wood with one coat of *suitable* sealant or oil before installation
b) seal all end-grain as work proceeds after sawing to length
c) finish with three coats sealant or oil after installation.

21.9 Landscaping

21.9.1 Definition of terms

a) *topsoil*: soil composed of 15—25 % clay, 10 % silt and 65—75 % sand with a minimum of 2% organic material, or red soil mixed with kraal manure in the ratio of 1 m³ kraal manure to 6 m³ red soil; topsoil to be free from omitrious matter and weed seeds

b) *compost*: properly decomposed organic material, free from omitrious salts, waste products and impurities and with a pH-value between 4 and 7
c) *fertilizer*: mixture of material complying with the specification under Law 36 of 1947; order and store in plastic bags.

21.9.2 Cleaning of site

a) clean site for planting by removing existing grasses, weeds, foreign material and stone larger than 50 mm diameter before commencement of soil preparation
b) clean site for hydroseeding by clearing out existing natural grasses without damage to the latter; remove loose foreign material from bare patches.

21.9.3 Preparation

soil for grass sods

a) loosen existing topsoil throughout to a depth of 100 mm and mix thoroughly with 2:3:2 fertiliser in the ratio of 20 kg fertiliser to 150 m^2 of topsoil
b) wet, level off and compact slightly on flat surfaces and mildly on inclined surfaces

soil for ground cover and shrub beds

c) loosen existing topsoil throughout to a depth of 200 mm and mix thoroughly with 2:3:2 fertiliser in the ratio of 30 kg fertiliser to 150 m^2 of topsoil and with compost in the ratio of 6 m^3 compost to 100 m^2 of topsoil
d) wet, level off and compact slightly on flat surfaces and mildly on inclined surfaces

soil for shrubs

e) dig 450 x 450 x 450 mm deep holes in soil for shrubs in bags 10 kg or larger and place excavated material aside
f) fill holes with a mix of two parts excavated soil and one part compost
g) add and mix throughout 500 g 2:3:2 fertiliser and 200 g bone phosphate per shrub hole
h) compact slightly and allow for decrease in volume

soil for trees

i) dig 900 x 900 x 900 mm deep holes in soil for trees and place excavated material aside
j) finish base of hole with fall in general direction of slope of site
k) fill holes with a mix of two parts excavated soil and one part compost
l) add and mix throughout one kg 2:3:2 fertiliser and 300 g of bone phosphate
m) compact slightly and allow for decrease in volume

soil for hydroseeding

n) scarify all visible bare patches of existing soil 100 mm deep in both directions at 500 mm centres
o) break up clods larger than 50 mm diameter, rake and level off.

21.9.4 Plant quality

a) acquire all plant material from a registered nursery
b) plants to be typical of their species or variety with normal densely developed branches and vigorous and healthy root system
c) plants to be free from damaged parts, parasites, fungus, disfiguring knots, insects, pests and infestation
d) grass sods to be approximately 1000 mm long and 500 mm wide and of uniform thickness; sods to be clipped short and soil base to be free from stones and clods
e) ground covers to be well bushed with high leaf density and height of 300 mm above ground level, delivered ex nursery in minimum 4 kg bag containers

f) shrubs to be multi-stemmed with generous side branches and well bushed to ground; shrubs to be >500 mm high as measured from crown of roots to outer leaf circumference, delivered ex nursery in minimum 4 kg bag containers except where specifically described otherwise in the bills of quantities
g) trees to be >1,5 metre in height as measured from crown of roots to average top of tree (not to highest branch) and stem diameter >25 mm at ground level except where specified otherwise
h) pruning wounds to be limited to 25 mm in size, showing vigorous bark growth all round
i) replace all dead plants free of charge
j) store plants under nursery conditions.

21.9.5 Planting

grass sods

a) lay grass sods on wet prepared topsoil close together and fill joints and hollows with topsoil
b) allow for area reduction
c) roll surface to keep surface tolerance to a minimum and to allow a gradual change in slope at berms and embankments
d) irrigate thoroughly after laying and rolling

ground covers

e) plant ground covers in prepared topsoil and in holes somewhat larger than the plant bulb and at least 200 mm deep so that top of bulb coincides with finished level
f) work edges of ground cover beds upwards to a height of 100 mm and compact
g) irrigate thoroughly after planting

shrubs

h) remove shrubs from containers and plant in backfilled holes so that top of soil originally in the containers is level with the finished ground level
i) compact around shrubs and form 500 mm diameter x 150 mm deep soil dams around each shrub
j) wet thoroughly after planting with 25 L of water per shrub

trees

k) at distances from buildings, drains and freestanding walls that take into account the type of soil, especially expansive soils, and species and mature height of tree (see tree distance guidelines in *SANS* 10400-H Annex E)
l) remove trees from containers and plant in backfilled holes so that top of soil originally in containers is level with finished ground level
m) compact around trees and form 1000 mm diameter x 150 mm deep soil dams around each tree
n) wet thoroughly after planting with 40 L of water per tree.

21.9.6 Hydroseeding

a) on prepared soil
b) water: 10 000 L per hectare
c) fertiliser: lime at 4 t per hectare worked into the soil
d) superphosphate: 0,3 t per hectare worked into the soil
e) 2:3:2 at 0,5 t per hectare with seed mix
f) LAN: 0,5 t per hectare worked into soil after 6 and 12 weeks
g) anti-erosion compound: 200 kg per hectare with seed mix
h) mulch: 400 kg per hectare with seed mix
i) germinating agent: as per specialist's instruction
j) seed mix: as specified.

21.9.7 Tree supports

a) support every tree with 2,5 m long x 50 mm diameter treated eucalyptus stake driven 500 mm into soil
b) tie each tree to stake with two steel wires sleeved in 300 mm long plastic hose-pipe section.

21.9.8 Precast concrete tree rings

a) in two halves, size as specified
b) place halves firmly and horizontally in soil dams around trees
c) trim grass sods around tree rings where applicable.

21.9.9 Garden furniture

a) garden furniture: type as specified.

21.9.10 River pebbles

Size, colour, mix as specified.

21.9.11 Maintenance

a) maintain plant material for the specified period including at least three months of the growing season namely September to March period:
b) keep all planted areas free from weeds and loosen soil around ground covers, shrubs and trees once every two weeks
c) prune shrubs and trees regularly according to accepted horticultural practice.
d) replace sick or dead plants immediately
e) mow grass sod areas weekly and remove cut grass
f) mow all hydroseeded veld grass areas once every 3 months and remove cut grass
g) apply 2:3:2 fertiliser at a rate of 5 kg per 100 m^2 of grass sod area once monthly
h) water planted areas once per week during September to March and once every fortnight during April to August as follows: shrubs 25 L at a time; trees 40 L at a time.

PW371-B: CONSTRUCTION WORKS: SPECIFICATION

PW 371-B

EDITION 2.0

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

CONSTRUCTION WORKS: SPECIFICATIONS

PARTICULAR SPECIFICATION

First Edition October 1983
Second Edition July 2013

Particular Specification

(read with *PW371-A*)

Works: Upington:Employment and Labour:Total refurbishment of existing labour office
Ref no: *19/2/4/2/2/2349/192*

.

TABLE OF CONTENTS

1 Earthworks

1.1 Site clearance

Applicable standard: SANS 2001 – Construction Works Part BS1: Site clearance

Specification data:

SANS 2001-BS1 covers removal of vegetation, fences, guard rails and posts, litter and building rubble, boulders of size up to 0,15 m3, and surface and subsurface obstructions, and demolition and removal of structures (including their basements, if any), not directly associated with or incidental to any excavation.

X designated area/site in which work is to be carried out: see drawings

X level of finished earthworks: see drawings

X site clearing activity numbers: …

1 / 3 / 6 / 9 / 10 /

1 removal and disposal of vegetation; 2 removal and disposal of structures by means of bulldozing; 3 demolition, breaking up and removal of buildings to ground level; 4 demolition, breaking up and removal of underground structures; 5 ditto septic tanks, soak pits; 6 ditto litter, rubble, rocks on surface; 7 removal and stacking of re-useable materials; 8 removal of asphalt layers; 9 removal of paving; 10 removal of kerbs, channels, haunching; 11 scarifying, ripping to blocks <200 mm; 12 removal of disused foul water and storm water drains and water mains

2 Concrete works

2.3 Foundations (*SANS* 2001-CM2)

SANS 2001-CM2 covers construction requirements for strip footings, pad footings and slab-on-the-ground foundations to receive masonry walling, and the construction of lightly loaded concrete surface beds.

Specification data:

X site class designation: see drawings

R /

R rock; H heaving (expansive) soils; C collapsible soils; S compressible sand; P fill, dolomite, marshy areas, mine waste, very soft clays. Site class designations R, H, C,S indicate that the expected range of total soil movements arising from ground movements is such that no special precautionary measures are required to minimize the effects of differential ground movements on buildings. Number denotes higher range of movement. Behaviour of P is variable and the reason for such classification should be given in brackets, e.g. P (fill).

X foundations: in accordance with the drawings / in accordance with the requirements of *SANS* 10400-H for strip footings, slab-on-the-ground foundations or modified normal construction for category of expected damage 1 or 2 / designed and constructed under supervision of a Competent Person (Civil Engineering)

X minimum founding depth: see drawings

Required where the geotechnical report indicates a deeper requirement than that provided for in *SANS* 10400-H.

additional requirements

X protection against termites: SANS 10124.

2.4 Concrete floors and paving on the ground

X industrial floors: direct-finished one course slab as designed and constructed to *SANS* 10109 under direction of a *Competent Person* (civil engineering)

Direct-finished one-course concrete floors on the ground are superior to concrete bases with screed or topping, and should be used if floor is to be left as is, or if to be covered with resilient floor finishes like thermoplastic tiles or carpet.

concrete

X concrete grade: see drawings

20 /

Show grades on drawings.

Default: (grade 20 for base courses of lightly loaded floors [no trucking] and one-course domestic and office floors on the ground that will serve as the final wearing surface, or grade 30 for paving and floors on the ground to carry fork-lift trucks) is acceptable.

damp-proof under-surface membrane

X DPM under floor area: required /

Dpm normally not required under external floors.

fabric reinforcement

X fabric reinforcement ref. no. 100 / not required

X floor/paving thickness: see drawings

Floor thickness ranges between 120 and 360 mm, depending on loading, use

placing

X levels and gradients: see drawings

joints

X joint sealing: sealed

Joints should be sealed when the floor is used under wet conditions, or where hygiene or dust has to be controlled.

mm; 150/280 – 350 mm; 120/280

3 Masonry

3.1 Masonry Walling (*SANS* 2001-CM1)

SANS 2001-CM1 Masonry Walling covers requirements for masonry walls, materials, the laying of masonry units in unreinforced and reinforced applications, the building in of door and window frames, holes and chases, the securing of timber roof structures and the fixing of slips.

Specification data:

masonry units

Bricks and blocks are collectively termed *masonry units,* whether solid or hollow. A block has dimensions which satisfy any one of the following conditions: a length of 300–650 mm, width of 130–300 mm, or height of 120–300 mm. See SANS 2001-CM1 for standards and specifications.

X type: burnt clay

X masonry units: *SANS* 2001-CM1 clause 4.1.1.3

Omit if default (to *SANS* 227 and *SANS* 1215) is acceptable

Specify to clause 4.1.1.3 only with permission.

SANS 2001 CM1 clause 4.1.1.1 states "Masonry units shall comply with the requirements of either 4.1.1.2 (*SANS 227 and SANS 1215*) or 4.1.1.3". Clause 4.1.1.3 is a generic description, which may be more practical in areas where bricks to SANS 227 are unobtainable.

burnt clay masonry units (*SANS* 227)

Omit if requirements of *SANS* 2001-CM1 clause 4.1.1.3 are acceptable.

X nature of face unit: solid /

X class of face units: FBS

Class E bricks are any class of masonry unit produced for structural or load-bearing purposes in face or non-face work, and is supplied to an agreed compressive strength e.g. FBSE2, where the number equals the nominal compressive strength in megapascals.

X nominal dimensions: 222 x 103 x 76 mm

See SANS 227 for modular sizes, e.g. 190 x 90 x 90 mm.

X colour of face units: To match existing on site.

mortar

X sand: *SANS* 1090

Omit if default (clause 4.1.4.1) is acceptable.

Clause 4.1.4.1 states that "Sand shall either comply with all of the following requirements or, if required in terms of the *specification data*, the requirements of SANS 1090 for mortar sand (natural or manufactured)"

X mortar class: II

Class I mortar is *suitable* for highly stressed masonry, e.g. multi-storey load bearing buildings; class II is *suitable* for normal load bearing applications, including parapets, balustrades, retaining structures, freestanding and garden walls, and walls exposed to severe dampness; class III mortar (not mentioned in *SANS* 2001-CM1) is *suitable* for lightly stressed bearing walls where exposure to dampness is not severe, or for renovation to un burnt clay masonry walling.

reinforcement

X pre stressing steel (hot-rolled bars or high tensile steel wire and strand) : …

Provide particulars or omit if not required.

NOTE on metal wall ties: SANS 204 requires masonry walls enveloping habitable portions of the building fabric in all climatic zones to be cavity or insulated cavity walls. Note that existing wire tie types may not be able to be centred centrally and conform to the minimum embedment rule of 50 mm.

work

X face work jointing: struck* / flush / recessed / drip

Struck (half-round) joints are denser with better resistance to water penetration. Flush joints require careful cleaning of face work. Face work includes fair face work.

X face work pointing shape, colour: …

Pointing is the raking out of brickwork joints 20 mm deep, then filling with mortar, usually coloured. Joint faces can be left flush, projecting, or shaped in the same way as jointing.

X multi-leaf wall bond: stretcher and brick force /

SANS 2001-CM1 specifies collar-jointed walls as default. Collar-jointed walls have a narrow cavity (<25 mm) between the leaves (the collar joint) which is filled solid with mortar or grout as the work progresses (not to be confused with *grouted cavity* construction where the cavity is wider and filled with concrete). Collar-jointing is intended for walls that require an effective thickness equal to the actual overall thickness of the wall. The success of this construction depends heavily on proper supervision. Collar-jointing is not mentioned in *SANS* 10249 Masonry Walling.

X position of control and articulation joints: see drawings

Relevant standards

SANS 10021 The waterproofing of buildings (in the case of facings this depends on climatic region, facing material and backing).

SANS 10073 The safe application of masonry-type facings to buildings (withdrawn).

SANS 10145 Concrete masonry construction.

SANS 10164 The structural use of masonry.

SANS 10249 Masonry walling.

SANS 10400-H Foundations.

SANS 10400-K Walls.

SANS 10400-M Stairways.

SANS 10400-P Drainae.

4 Structural timberwork

4.1 Structural timberwork (flooring) (SANS 2001-CT1)

SANS 2001-CT1 covers the installation of suspended timber floors in buildings to be constructed for occupancy class H3 (domestic residence) and H4 (dwelling house) buildings, as described in SANS 10400-J Floors, and that have a distance that does not exceed 7 m between supports, and a beam/joist spacing that does not exceed 600 mm. Modify to make this part of SANS 2001 applicable for the installation of suspended timber floors designed for other occupancies or for greater dimensions between beams or supports.

For wood floors on solid substrates see Section 13.

Specification data:

softwood timber joists

X type: solid / laminated

X cross section: see drawings

Omit if default description (to *SANS* 10400-J) is acceptable.

hangers, masonry anchors

X size/strength: …

Omit if default description in *SANS* 2001-CT1 (hangers: 4,0 kN; masonry anchors: 10 dia x 45 mm length, 2,5 kN) is acceptable.

softwood flooring boards

Omit this part if default description in *SANS* 2001-CT1 is acceptable.

X softwood flooring boards: *SANS* 629

X nature: solid /

4.2 Structural timberwork (roofing) (*SANS* 2001-CT2)

SANS 2001-CT2 covers the construction of timber roof assemblies in buildings. It includes the manufacture of bolted trusses that are designed in accordance with the requirements of SANS 10400, the erection of prefabricated timber trusses, the erection of rafters and purlin rafters, the fixing of purlins and battens, and the fixing of brandering to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards

Specification data:

softwood roofing timber

X type: solid /

X cross section, grade: see drawings /

4.3 Structural laminated timber (*SANS* 1460)

X material: see drawings

softwood (Pinus) / hardwood (Eucalyptus) / board (fibreboard, plywood, composite board)

X cross section: see drawings.

5 Insulation, sealants, seals

6.1 Thermal insulation

6.1.1 Materials

Consider insulation materials with recycled content, e.g. polystyrene, glass fibre, cellulose and polyester fibre. Consult TIASA (Thermal Insulation Association of SA) or EPSASA (Expanded Polystyrene Ass. of SA).

X required R-value/thickness if not to SANS 204: …

Show all insulation thicknesses on drawings. Actual R-value test results may be obtained from the South African Fenestration and Insulation Energy Rating Association (SAFIERA).

X required fire performance classification of thermally insulated building envelope systems (SANS 428):

X combustability: A /

A (non combustible); B (combustible)

X surface fire spread properties: / 2 /

X 1 (no flame spread) / 2 – 6 (rapid flame spread)

X application: see drawings

Consult *SANS* 10400-T for fire performance requirements.
of waterstops.

6.5 Architectural seals

X type: patent extruded aluminium carriers with flexible seal inserts of synthetic rubber, rigid PVC, nylon brush filaments, polypropylene pile, or silicone rubber / patent PVC, pile or neoprene door and window frame seals / patent silicone intumescent seals (fire and smoke) / patent external extruded aluminium threshold plate seals

7 Roof covering, cladding

To be published: SANS 2001-CR2 Tiled and sheeted roofs.

7.1 General

X type of cover, cladding: see drawings

tile / profiled sheet / fully-supported sheet / thatch

X roof pitch: see drawings

Check minimum roof pitches with *SANS* 10400-L. Roof pitches below that recommended by the manufacturer can be achieved by laying plywood boarding over the rafters and covering with waterproofing before tiling. Check with manufacturer.

air infiltration and leakage".

7.3 Profiled sheet roofing/cladding

7.3.1 Metal sheet

Mass of metal sheet roofing is ±11 kg/m^2.

metal

X metal and coating: zinc-coated (galvanized) steel / AZ-coated steel / pre painted zinc coated steel / natural aluminium alloy / pre painted aluminium alloy / stainless steel / copper

Copper, aluminium, stainless steel or weathering steel should be used in environments where atmospheric corrosion is aggressive. Check availability, thickness and finish of these metals with manufacturer/ supplier.

profile

X profile: corrugated

X sheet length: standard lengths with overlap (see ridging)

Standard lengths (1,8 – 14 m) – check with manufacturer/ supplier.

Corrugated and IBR sheets in standard lengths with overlap causes less thermal movement stress on exposed fixings than long lengths.

steel

X nominal sheet thickness: 0,5 mm

Check availability of 0,8 mm sheets. 0,6 mm thick sheet costs ±16% more than 0,5 mm.

X coating grade: Z275 /

Z275 and AZ150 for inland regions, Z600 and AZ200 for coastal regions and aggressive atmospheres.

Coiled sheeting with hot dip zinc coating (galvanizing) class Z275 has an average zinc coating thickness of about 19µm; Z600 - 42µm. AZ coatings have increased corrosion resistance over zinc coating by 3 or 4. See notes on hot dip galvanizing under Section 5 Structural Steel. Get expert advice from HDGASA or ARTF - SCRACE.

prepainted metal

X pre painted metal sheet type: 3 /

Type 3 (mild to moderate rural, urban, tropical and industrial environments) / 4 (marine and industrial) / 5a (severe marine) / 5b (heavy industrial and industrial marine) / 6a very severe marine) / 6b (very severe industrial).

Coil coated and pre painted products are e.g. Chromadek or Chromadek Plus (Mittal Steel) for marine and industrial environments; there are several others. Paint coating more than doubles the life of sheets with metal coating only.

X match roofing/cladding sheet / corrugated /

7.3.4 Polycarbonate sheet

X colour : White…

X thickness: 1,2 mm

7.6 Flashings, trim

Similar materials ensure same life to first maintenance and avoid electrolytic corrosion.
Counter flashings with an anti-capillary fold avoid electrolytic corrosion.

7.7 Fascias and barge boards

X size: see drawings

Relevant standards:
SANS 10062: The fixing of concrete roof tiles.
SANS 10237: Roof and side cladding.
SANS 1200 HB-Cladding and sheeting.
*SANS*10400-L Roofs.
SANS 10400-T Fire protection.
Concrete Roof Tiles – Technical Manual. Concrete Manufacturer's Association.
Guide to good thatching practice. Thatcher's Ass of SA.

9 Ceilings, linings, partitions, access flooring

To be published: *SANS* 2001- Construction Works Part EC1: Ceilings, partitions, access flooring.

9.1 Brandered ceilings

9.1.1 Branders, grounds

X type: timber /

timber branders/grounds

SANS 2001-CT2 (and *SANS* 10400-L) covers the fixing of timber brandering to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards only: “Brandering of size 38 mm × 38 mm required to support gypsum plasterboard, fibre-cement board or similar board shall be securely spiked to the supporting timbers with 75 mm wire nails. Cross brandering shall be cut in between the longitudinal brandering and skew nailed to the same, using 75 mm wire nails at centres that do not exceed 900 mm”.

Grounds for wall linings: depth of 25 mm may be influenced by thickness of required insulation.

9.1.2 Fibre cement and gypsum board brandered ceilings

X type: fibre-cement / gypsum

fibre-cement board

Flat fibre-cement boards are made with organic fibres, plain or textured, and are water and fire resistant.

gypsum board

Gypsum board is non-comustible. Standard board should not be exposed to contact with water – do not use in industrial bathrooms or kitchens, or in exterior applications. For high moisture conditions use moisture resistant board. For fire resistance use X-rated board. Use double layers where acoustic insulation is required.

X type: standard /

X edge: square /

Use tapered edge board for scrim and plaster joints when full ceiling surface is not to be plastered.

cornices

X material, size: coved gypsum 75 mm wide / ditto 125 mm wide /

cover strips

X joint cover strips: H-profile: pre painted galvanized steel, size: see drawings

Omit if ceiling is plastered.

fixing

X board pattern: see drawings

Omit if not visible or default (symmetrical about room) is acceptable.

X position of movement/control joints: see drawings

movement/control joints should be a clean break of 15 mm through the complete ceiling structure and finish.

finish

X finish to plaster board ceiling: plain with cover strips /

9.1.4 Hatches

X position of ceiling hatches: see drawings

Hatches should be placed near geysers, allowing maintenance personnel to replace elements from a step ladder without having to climb into the ceiling space.

X trap door: laid loose

manufacturer/supplier.

9.3 Partitions, linings

X type: see drawings

drywall / light weight internal wall / demountable / cubicle / operable

performance

X required fire resistance in minutes: see drawings

/ 30 /

Fire resistance*: SANS* 10400 Part T classifies the performance of materials in respect of fire resistance in categories of 20, 30, 60, 90, 120, 180 and 240 minutes. Architect/*Competent Person* to specify. Fire resistance is achieved by increasing layers of board. Deflection requirements are achieved by multiple studs reinforced with layers of board. Check with SABISA.

X required sound insulation grading dB: see drawings

30 /

30 (normal speech audible, but unintelligible), 35 (loud speech understood), 40 (loud speech audible, but unintelligible), 45 (loud speech barely audible), 50 (shouting barely audible)

Comparable constructions: 26 (solid wood door without seals), 32 (6 mm laminated glass), 42 (100 mm brick wall), 48 (230 mm hollow concrete wall).

For noise measurement consult *SANS* 10103.

9.3.1 Materials

gypsum plasterboard

X type: wallboard /

Moisture resistant board for use in all wet areas such as bathroom showers as well as locations with high humidity levels.

X thickness: 12 mm

X type of edge: square /

X covering: paper backed

fibre cement board

X type: MD /

flat unpressed (MD), flat pressed (HD).

X thickness: 9 mm

9.3.2 Drywall partitions, light weight internal walls

X framing: timber /

X cladding: gypsum board /

X gypsum board cladding finish: paint

For cladding finish of appropriate type to suit expected traffic in designated areas, refer to manufacturer for recommendations.

X door/window frame finish: anodizing /

X glazing: clear /

X patterned / safety

10 Windows, doors, curtain walls, skylights, solar control

10.10 Wood doors (SANS 545)

X type of door: see drawings

batten / flush / / screen / cupboard /

X dimensions: see drawings

/ 813 / 864 mm x 457 / 2032 x 40/44 mm

457 mm high doors for cupboards. Entry doors for disabled persons in wheelchairs must be at least 813 mm wide.

X handing: see drawings

Hand refers to position of hinge when door opens towards viewer. Show first opening leaf of paired doors when important.

X exposure class: see drawings

2 /

2 (semi-exterior, partly or wholly exposed at infrequent intervals to unprotected open air conditions); 3 (humid interior); 4 (dry interior). Note there is no exposure class 1. Hardwood framed and braced batten doors are heavy duty doors, suitable for exposure class 2.

flush panel doors

X performance class: see drawings

HD

LD (light duty, hollow core) / MD (medium duty, semi-solid core / HD (heavy duty, solid core)

Solid core flush panel doors are heavy duty doors suitable for dry interior use only – specify for frequent use and abuse, e.g. schools, public places, hospitals.

Semi-solid flush panel doors are medium duty doors suitable for dry interior use only - specify for general use in office blocks, dwellings, barracks and single quarters, including cupboard doors.

Hollow core flush panel doors are light duty doors suitable for dry interior use only – specify for dwellings or cupboard doors in dwellings only.

doors or corrosive conditions.

10.12 Garage doors

X type: sliding

X size: single

X framework material: steel

X cladding/boarding material: prepainted galvanised steel

X operation: manual

X finish: powder coated

X locking devices: chrome plated centre lock with spring loaded side catches, interior

11 Plaster, screeds, toppings, terrazzo

11.1 Plaster

X type: see drawings

cement plaster

11.1.1 Cement plaster (SANS 2001 EM1)

SANS 2001- Construction Works Part EM1: Cement Plaster Admixtures are not permitted in cement plasters to improve workability or improve the properties of the finished plaster.

Specification data:

X application: single coat

X finish to cement plaster: smooth

Show in drawings: V-joints through full plaster thickness at dpc level and where different materials meet; metal lath strips over roof anchors on single leaf masonry walls, or across joints between different materials – see SANS 2001-EM1. advice should be sought from the manufacturer/supplier.

12 Tiling

12.1 Materials

X type of tile: see drawings

ceramic / mosaic

ceramic wall and floor tiles (SANS 1449/13006)

X group: A1 /

Group A (extruded split /quarry tiles) and B (dust pressed tiles) are classified according to their water absorption properties. C=other. Group A1 and B1 have the lowest water absorption (≤3%). Fully vitrified porcelain tiles, covered by *SANS* 13006 only, are frost resistant and suitable for cold rooms etc.. Not all manufacturers produce to *SANS* 13006.

X surface: glazed /

X shape, pattern, colour: See drawings

X nominal dimensions: see drawings

200 x 200 / 300 x 300 mm

X grade: first grade /

Second grade tiles have minor blemishes.

X glazed tile abrasion resistance class: not required

Abrasion resistance class to *SANS* 13006: 1 for interior soft domestic footwear such as bathrooms and bedrooms; 2 for interior light domestic traffic such as living rooms; 3 for interior and exterior areas such as domestic kitchens, halls and terraces, and low-traffic commercial areas; 4 for frequent traffic such as public entrances, shops, hospitals, hotel kitchens and exhibition rooms; 5 for severe pedestrian traffic such as shopping malls, airport concourses, sports stadia and factories.

X slip resistance value (coefficient of friction) : wet / on stairs and ramps

For slip resistance, contact manufacturer. Slip resistance is important in public places and on ramps and a requirement for disabled people (SANS 10400-S). Several test methods exist. The Pendulum Test Value (PTV) to BS 7932 is acceptable and a calibrated tester is available in SA. Slipperiness is also affected by use, water, spills and floor care.

X acid and alkali resistance of glazed tiles: / not required

450/300 / 600/450 x 50 / 65 mm

mosaic

X material: ceramic

X appearance: glazed

X colour: to be determined on site…

X size of tesserae: See drawings…

grout

X proprietary grout: cement-based

Epoxy grout e.g. in food storage and preparation and processing areas, abattoirs, breweries, dairies, bottling plants, restaurants, industrial kitchens, hospitals and clinics.

accessories

X edging, trim, stair nosing and movement joint strip material: PVC // brass /l

X profile, size, colour: To be standard

12.2 Tiling

To be published: *SANS* 2001-ET Tiling.

bedding

X external angles: see drawings

mitred /

X internal sills in bathrooms: see drawings / level / sloping

Sloping to prevent internal sills being used as a shelf.

External sills should be tucked in under all window frames - fixed in front of window frame will lead to moisture damage in exposed conditions. See also *SANS* 2001-CM1.

X pattern: see drawings.

13 Floor coverings, wall linings

13.6 Epoxy flooring

Epoxy floors are hard-wearing and have excellent resistance to chemicals, oils etc.

X aggregate colour, size: See drawings and specifications.

Application

X position of edge/dividing/feature strips: see drawings
X thickness: 2 mm
X finish: smooth.

Relevant standards:
SANS 10043 The installation of wood and laminate flooring
SANS 10070 The laying of thermoplastic and similar types of flooring.
SANS 10170 The cleaning and maintenance of floors.
SANS 10177 Fire testing of materials, components and elements used in buildings.
SANS 10186 The installation of textile floor coverings.
SANS 10245: The maintenance of textile floor coverings.
SANS 2424 Textile floor coverings – vocabulary.
SANS 10400-J Floors.
SANS 13746 Textile floor coverings – guidelines for installation and use on stairs.

14 Painting, paperhanging

To be published: *SANS* 2001-EP Painting.

14.1 Materials

primers

Standards for red lead or red lead/red oxide primers, zinc chromate primers, calcium plumbate primers, metallic lead primers have been withdrawn due to toxic lead content.

undercoats

Universal undercoats are *suitable* for interior and exterior use for subsequent application of solvent-borne finishes, especially gloss finishes.

X universal undercoat grade: 1 /

1 (high hiding), 2 (utility grade).

finishing paints

alkyd

Alkyd paint, also known as enamel paint, is solvent-borne.

X alkyd high gloss finishing paint (SANS 630) grade: 1 /

1 (high hiding), 2 (regular hiding).

X decorative paint for interior use (SANS 515) type: semi-gloss /

emulsion

X emulsion paint (*SANS* 1586)

X grade: / 2 /

Grade: 1 (high hiding, scrub resistant), 2 (high hiding, washable), 3 (general purpose, washable), 4 (utility, interior only)

Emulsion paint is water-borne and suitable for application over plaster and masonry substrates. Grade 1, 2 and 3 is suitable for interior and exterior use, grade 4 for interior use only.

X gloss designation: matt /

X textured emulsion wall coating (SANS 1227)

X type: 1 /

1 (smooth aggregate-free), 2 (low-relief, sand-textured finish), 3 (high-relief, coarse-textured)

X fungus resistance: required /

Aluminium paint is typically an alkyd resin binder pigmented with flake aluminium.

Micaceous iron oxide paint is typically solvent-borne. Masonry paint may be solvent-borne or emulsion type.

varnishes, varnish stains, stains, sealers

Varnishes are transparent or semi-transparent.

Stains have no protective or preservative properties and are *suitable* for interior work only.

X varnish or varnish stains for interior use (SANS 887)

X type: 1 /

1 (general purpose), type 2 (heat and chemical resistant)

X gloss designation: eggshell

14.2 Preparation of surfaces

X hardware etc.: remove, mark, store and refix / mask.

14.3 Colours

Specify colours on schedules. There is a marked difference in price for various colours, especially bright colours.

X identification colour marking (pipes etc.): required /

14.8 Paint systems for on-site application

X paint system: see drawings

alkyd / emulsion / textured emulsion / masonry / cement / lime / varnish / aluminium / heat-resistant / sealer / intumescent

X colour: see drawings.

15 Furniture, equipment, stairs, architectural metalwork

15.1 Joinery

For wood doors and windows see Section 10.

15.1.1 Solid wood

wood

X type: hardwood / softwood / laminated wood

hardwood

X species: Iroko and Meranti

SANS 1099 includes requirements for preservative treatment. Annex C gives properties of 29 hardwood species, local or exotic.

softwood

X species: SA Pine…

laminated timber

x exposure class: / 4

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

X type of wood: / softwood

X species: SA Pine…

15.1.2 Wood board

X type: / decorative melamine-faced boards (MFB) /

decorative melamine-faced boards (MFB) (*SANS* 1763)

MFB is low pressure melamine on particle board or MDF, suitable for medium duty vertical and light duty horizontal surfaces e.g. shelving – not for kitchen and office desktops.

X core: particle board /

X thickness: / 32 mm

Board size 3,6 x 1,8 m.

X shelving edge: sapele-print /

X surface finish: smooth matt /

15.1.3 Polymer laminate and solid surfaces

high pressure decorative laminates (HPL) (*SANS* 4586)

HPLs consist of layers of phenol formaldehyde impregnated sheets of Kraft paper with melamine formaldehyde (MF) impregnated décor and overlay paper, pressed together. Normally glued to suitable board with a backer laminate for balance, but can be self-supportive (solid core).

X material type: S /

S (standard) / F (flame-retardant) / P (post formable).

X grade/duty class (wear, impact and scratch resistance) : 1 /

1 (light duty, post-forming), 2 (vertical surface), 3 (general purpose), 4 (heavy duty)

General Purpose grade, thickness1,2 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 / 4,5 mm: for work surfaces on counters, vanities, desks and tables, and for vertical surfaces like wall panels and front panels of work stations in hospitals, airports and restaurants.

Vertical Surface grade: for cabinet walls, door and drawer panels, desks, restaurant booths, architectural cladding.

Light duty/post forming grade, thickness 0,35 / 0,6 / 0,8 / 1,0 mm: for rounded edges.

Heavy duty, thickness 6,0 mm

X thickness: light duty and post forming: 1,2 / mm; as required

Omit if default (1,2 mm for grade 3 (general purpose) and 1,0 mm for grade 1 and 2 (vertical surfaces and post forming) is acceptable.

X surface finish, colour, texture: smooth matt /

X solid core grade: interior grade /

X thickness interior grade: 3 /

Solid core for horizontal and vertical work surfaces; exterior grade for vertical surfaces only, e.g. cladding, balustrading and signage.

Check thickness and usage with manufacturer.

15.1.6 Joinery

general

Climate zones: inland / coastal. Inland zones represent over 90% of South Africa's climate, made up of an average 8% moisture content, including air-conditioned indoor areas.

X wood sizes: see drawings

Wood sizes: show finished sizes of timber members on *drawings* to avoid arguments about tolerance: 25 mm nominal size reduces to 22 mm after planning, 38 to 32, 50 to 44, 76 to 68, 114 to 105, 150 to 140, 228 to 118 mm.

Check available board sizes to ensure optimum yield and to avoid unnecessary waste.

Marine ply is a superior choice to moisture resistant particle board in wet areas.

X edges of veneered composite board: solid wood edging to match veneer and to full thickness of board

grain, pattern

X direction of grain or pattern: see drawings

Omit if default (vertical on vertical surfaces, parallel to walls on horizontal surfaces) is acceptable.

backs

X backs to fittings: 4,8 mm hardboard /

drawers

X drawer construction: see drawings

Omit if default construction is acceptable.

15.1.7 Fixing

Consider tables, counters and shelves at a variety of heights to accommodate standing, sitting and a range of different tasks for disabled persons.

wood cornices, skirtings, quarter rounds, rails

X material: solid hardwood /

X size and profile: see drawings.

16 Hardware

Hardware information should appear on door, window or finishes schedules.

16.1 General

X type: see drawings

lock / latch / handle / plate / closer / hook and eye / bracket / hinge / bolt / door stop / door knob / door knocker / sanitary / furniture / curtain rail / edge or feature strip / sunken door mat / signage / drawer runner

steel / aluminium / brass / nylon / ceramics / porcelain / wood

finish

For finishes on metal see *SANS* 1171 Annex C.

X finish: see drawings

16.3 Locks, latches, catches, bolts

X type lock: see drawings

mortise / rim / cylinder / cupboard / drawer

X type handle: see drawings

lever / knob

X type latch: see drawings

mortise / cupboard / finger

X type catch: see drawings

magnetic / ball / roller

X type of bolt, size: see drawings

barrel / flush / tower / stable / extension / size

SANS 10400-S stipulates that door handles should be 450 mm away from any wall.

Consider handles, levers and controls that are easy to operate by disabled persons. SANS 10400-S: The manual operation of handles, taps, levers, switches, locks, control mechanisms and keys is in part affected by their design. The selection of controls requiring a 'twist-action' of the wrist and hand, and fine-finger movements should be avoided.

keys

X master keys: see drawings.

16.4 Hinges

hinges for lightweight doors

X type: see drawings

piano / pivot / flush / european (adjustable) / strap

16.5 Door closers

X type: see drawings

overhead door closer / floor spring / transom concealed door closer

Consult AAAMSA Technical Publication: Hardware, Door Controls etc.

Ensure surface mounted overhead closers do not hit the wall when opening.

All fire doors are required to be fitted with closers (NBR), usually overhead. Do not fit a mechanical hold open arm to a fire door. Use concealed mechanisms in hygienic areas.

Ensure floor spring box depth of up to 75 mm can be accommodated.

Specifiy a higher strength closer for exposed, windy or draughty conditions. Specify a lower strength for narrow doors.

Double doors with rebated meeting stiles must be fitted with a door selector to ensure the inactive leaf closes first.

X size: see drawings

Size depends on door size and weight – see manufacturer's literature.

16.6 Pelmets, curtain rails, rods, blinds

pelmets

X type, size and profile: see drawings / wood / metal /

rails with rollers or glides

X track: single /

X duty class: light /

X finish: As per drawings and specifications

X cord: with / weighted cord pulleys

16.9 Number/name plates, safety signs

Type, letter size, position, message etc. should be given in schedule form.

Signs may be grouped: general information signs; hospital signs; safety signs; signs for disabled persons; statutory signs, e.g. fire safety.

X type: statutory signage

Changeable plate system: fixed plate holders to which may be attached or inserted removable interchangeable sign plates; variable room identification system: fixed room numbers and removable name strips; changeable letter system: holders into which can be inserted removable individual letters, numbers, etc.; illuminated signs: cabinet enclosing a light source illuminating a translucent face panel bearing the specified signage; in-house signage: project specific signs

X materials: aluminium / plastic /

X colour : As per Standard Specifications

symbolic safety signs

X type: PV / MV / WW / FB / GA

PV (prohibitory – circular, red), MV (mandatory – circular, blue), WW (warning – triangular, yellow), FB (informative, fire-fighting – square, red), GA (informative, general – square, green)

X reflectivity, luminousity: standard (non-reflective) / self-luminous (radio luminescent) / internally illuminated / retro-reflective or photo luminescent / decal / embossed

X size: As specified

See *SANS* 1186 Annex C for positioning, fixing, illumination and maintenance of signs.

16.10 Drawer runners/slides

X type commercial ball-bearing runner: self-closing /

X load capacity: 30 kg static,

X extension: full / three-quarter.

Relevant standards:

SANS 10140 Identification colour marking.

17 Glazing

SAGGA – South African Glass and Glazing Association – is the trade association and AAAMSA member.

17.1 Materials

glass

Clear and tinted float glass is made in South Africa by one manufacturer in Springs.

X type of glass: see drawings

float / safety / security / pattern / tinted / insulated / polymer

X float glass thickness: see drawings

Local float glass thickness: 4, mm.

X laminated safety glass interlayer strength class: NS /

NS (normal strength), HPR (high penetration resistance), HI (high impact).

17.3 Mirrors

X type: silvered clear glass /

Stainless steel for vandal proof areas. Mirror backs are easily damaged. Silvered obscure glass also available.
Consider full length mirrors in public places for children and disabled persons.

Relevant standards:
SANS 10137 The installation of glazing materials in buildings.
SANS 1263 Safety and security glazing materials for buildings.
SANS 10400-N Glazing.
SANS 2001-CG1 Installation of glazing.

Relevant sources:
Selection Guide for architectural Aluminium Products. AAMSA.
Skylight Association of Southern Africa.

18 Drainage, sewerage, water and gas supply, fire equipment, sanitary plumbing

18.1 Roof eaves drainage

18.1.2 Gutters and downpipes

X gutter type: see drawings

eaves / valley / box / parapet/chimney

X material: Z275 /

Galvanized sheet: Z275 or AZ150 for inland use; Z450/ Z600 or AZ200 for the *coastal region*, pre painted for corrosive industrial use. Commercial standard rainwater goods are made of 0,4 or 0,5 mm thick sheet.

X profile: see drawings

half round / square / rectangular

X size: see drawings

100 x 75 mm, or 100 / 125 / 150 mm half round (domestic); 125 x 100 (institutional); 150 x 100 / 200 x 150 / >225 x 225 (industrial). Sheet metal gutter standard lengths: 1,8; 3,0; 3,6; 4,8; 5,4; 6,0 m.
Gutter and downpipe sizes are determined by roof area and rainfall region in accordance with the requirements of *SANS* 10400-R: summer rainfall area:140 mm²/m² roof area served; year-round rainfall area:115 mm²; winter rainfall area: 80 mm². Downpipe internal size: 100 mm²/m² roof area served or 4400 mm² (75 mm diameter).For more information on gutter design, e.g. risk, rainfall intensity, hail and outlet protection, launders, drop boxes etc. see The Red Book – Southern African Steel Design Handbook, Section 11.

gutter brackets

X type: as supplied by gutter manufacturer

downpipes

X size: see drawings

100 / diameter

X sheet metal downpipe bends: crimped /

18.2 Flat concrete roof, balcony and floor drainage

18.2.1 Rainwater outlets

X type: see drawings

patent with grating / pipe without grating

X patent type: see drawings

vertical / 45° / 90° / two-way / car-park / pedestrian)

X size: see drawings

50 / 80 / 100 / 150 mm diameter
Outlets without gratings should be used for small roof areas in accessible position only, e.g. for balconies, and be not less than 75 mm in diameter due to the waterproof dressing restricting the pipe bore.
75 / 110 / 160 mm (PVC); 80 / 100 / 125 / 150 mm (steel)

18.3 Storm water drainage

18.3.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

X pipes that are to be encased in concrete: see drawings

18.3.2 Storm water drainage (SANS 2001-DP5)

SANS 2001-DP5 covers the construction of storm water drainage systems including pipelines, manholes, culverts, catchpits, inlet and outlet structures.

Specification data:

pipes

X material of pipe, associated fittings: see drawings

concrete / fibre cement / PVC-U / GRP / PP / PE

X diameter: see drawings

concrete pipes: 100, 150, 225, 300, 375, 450, 525, 600, 675, 750, 825, 900, 1050, 1200, 1350, 1500, 1800 mm. Check diameters of other material pipes.

18.4.3 Sewers for buildings (SANS 2001-DP7)

SANS 2001-DP7 covers surface mounted sewers having a nominal diameter of 200 mm or less; and below ground sewers having a nominal diameter of 160 mm or less including manholes and the like which discharge into a connecting sewer, conservancy tank, French drain or septic tank. This standard is *suitable* for constructing sewers designed in accordance with the design rules provided in *SANS* 10400-P, Drainage. Construction of manholes is referred to *SANS* 2001-DP4.

Specification data:

X type of pipe, associated fittings: cast iron / PVC-U /

X diameter: see above

X gradient: see drawings

SANS 10400-P requires that sewer gradient be not flatter than 1:120 for 100 mm diameter pipes and 1:200 for 150 mm pipes. The hydraulic load determines the minimum grade of the pipe.

18.4.4 Surface boxes, manhole covers, gulley gratings, frames

For vehicular and pedestrian areas only (does not apply to gullies and manholes in buildings).

X type: see drawings

surface box / valve chamber / manhole/inspection cover / gulley grating

18.6 Electric geysers and solar water heaters

18.6.1 Electric geysers

X geyser type: wall mounting / vertical /

X nominal capacity: see drawings

open outlet and cistern closed type 150 L

X design: standard / solar /

18.6.2 Solar water heaters

X type: domestic /

X capacity in litres: 150 L…

X collector/storage combination: integral /

X heat transfer method: indirect

X circulation method: thermo-siphon /

X cover: without cover

X supplementary energy source required: mains electricity /

X working pressure: 400 kPa

X freezing, hail resistance: required /

18.8 Fire equipment

fire hose reels

X height from floor to spindle if not 2 100 mm: …

X enclose reel in security box with clear acrylic cover and suitable closer: required /

portable fire extinguishers

X portable non-refillable general purpose extinguishers (SANS 1322):

Suitable for all classes of fire other than class D

X class: I /

class I (temp <110°C); II (temp <65°C)

X capacity: 2,5 kg

X extinguishing medium: dry powder

X dry powder rechargeable extinguishers (SANS 1910):

X dry powder

X class of fire: A

A (ordinary combustibles); B (flammeble liquids); C (live electric power), or combinations, e.g. ABC

X CO_2 type extinguisher (SANS 1567):

X capacity: <9kg

X class of fire: A

X BCF type extinguisher (SANS 1151) capacity: 1 – 12 kg

Suitable for class of fire ABC

X enclose extinguisher in security box with clear acrylic cover and suitable closer: required.

18.9 Sanitary plumbing

18.9.1 Sanitary appliances

appliances

X appliance type: see drawings

wash-hand basin / bath / water closet / urinal / bidet / sink / flushing cistern

X material: see drawings

glazed ceramic / stainless steel / plastic / stone / concrete

X stainless steel grade: 430 / 304 / 316; finish: satin / bright

Omit if default (430) is acceptable. Stainless steel grades are listed by the American Iron and Steel Institute (AISI). Grade 430 is *suitable* for domestic purposes, kitchen sinks, wash troughs and hand wash basins. Grade 304 is *suitable* where mild corrosive conditions exist, e.g. in *coastal areas*. Grade 316 is *suitable* for laboratories, photographic workrooms and seagoing vessels where corrosive conditions are severe.

X anti-theft waste plug: required /

X flow restrictors: not required

baths

X type, shape: see drawings

built-in / freestanding / spa / rectangular / oval / corner

X handles: required /

basins

X type, shape: see drawings

counter-top / wall hung / drop-in / pedestal / round / oval / corner

wash troughs

X type: see drawings

single trough / double trough / with drain board

water closets

X type: see drawings

wall-hung / floor mounted / close-couple / squat

flushing cisterns

X type: see drawings

high level / low level / near level / close coupled / wall-hung / concealed

X flush capacity: regular flush (6 or 9 L)

X flush valve flushing operation: dual flush /

urinals

X urinal type: see drawings

bowl / trough / stall

sinks

X sink type: see drawings

domestic / laboratory / scullery / scrub sink / cleaner's / drop-in / wall-hung / pot / freestanding / with drainboard / with backsplash and tiling key / single, double or triple compartment

X bowl position: see drawings

left / right / centre

shower enclosures

SASEMA (South African Shower Enclosure Manufacturer's Association). SANS 549 "domestic" includes use in hotels, student accommodation, hospitals.

X shower enclosure type: prefabricated /

X drained floor type: tiled /

X glazed wall/door/: framed /

Frameless construction requires toughened safety glass. Holes for hinges etc. must be prepared before toughening.

X safety glass: laminated safety glass /

X door type: sliding

X metal finish: anodizing, type …

Metal coating grade/thickness will depend on location: anodizing grade AG15 or AG20 will suffice for mild atmospheric conditions, while grade AG25 will be required for coastal applications. For powder coating type 4 or 5 should suffice. Check with manufacturer.

18.9.2 Taps, valves, showerheads

X tap, valve type: see drawings

bath / basin / shower / sink / garden / bib / pillar / mixer / divert mixer / swivel / stop / flush / gate / hose / washing machine / drain cock / float

X showerhead type: see drawings

fixed rose, diameter … / adjustable rose / swivel / rail / vandal proof / hand shower and holder

X material: chromium plated brass /

X flush valve type: WCHP /

WCHP (Water closet high pressure; WCLP (water closet low pressure).

18.9.3 Traps

X type: see drawings

bottle trap / P-trap / P-trap resealing / pop-up

X material: rubber /
X depth of seal: 75 mm.

18.9.4 Miscellaneous

holders

X holder type: see drawings

paper / soap / tumbler / tooth brush / toilet brush / towel rail/ring/hook

X material: See drawings

shelves

X material: / wood /

cabinets

X type: wall / vanity /
X material: wood /

Relevant standards:
SANS 10105 The classification, use and maintenance of portable fire extinguishers.
SANS 10112 The installation of polyethylene and PVC-U pipes.
SANS 10102 Selection of pipes for buried pipelines.
SANS 10252-1 part 1: Water supply and drainage for buildings; part 2: Drainage installation for buildings.
SANS 10254: The installation of fixed electric storage water heating systems.
SANS 10400-P Drainage.
SANS 10400-Q Non-water-borne means of sanitary disposal.
SANS 10400-R Stormwater disposal.
Relevant sources:
Concrete Pipe Handbook published by the Concrete Society of Southern Africa.

19 Electrical works

19.3 Materials and installation

19.3.1 Wiring

conduits

Chasing is prohibited in wall faces that are to receive roof flashing. Roof flashing is inserted in grooves sawn with disc cutters after conduits are installed, leading to unnecessary and costly repair work.

conductors

See *SANS* 10198 The selection, handling and installation of electric power cables of rating not exceeding 33 kV.

distribution board, meter cabinets

X position of DB's and meter cabinets: see drawings

19.3.2 Fittings

luminaires

X type: see drawings

surface mount / recessed / accent / down lighter / step / theatre / outdoor (pole, step, bollard)

stove, hob, oven, cooker hood

X stoves, hobs, ovens, cooker hoods model, type: see drawings.

Relevant standards:
SANS 10114 Interior lighting.
SANS 10389 Exterior lighting.
SANS 10142 The wiring of premises.
SANS 10222 Electrical security installations.
SANS 10313: The protection of structures against lightning.
SANS 61024 Lightning protection of structures.

20 Mechanical works

20.1 Installation

X routing and/or concealment of cables, ducts, trays, pipes etc. : see drawings.

20.3 Location and access

X catwalks, cat ladders, access panels: see drawings.

Catwalks and cat ladders should be detailed and coordinated with other services in order to keep to a minimum.

21 External works

21.1 Paving

21.1.1 Materials

units

X paving unit type: see drawings (precast concrete blocks / burnt clay pavers / in-situ concrete / precast concrete slabs)

precast concrete segmental paving blocks

X type: S-C (no interlock)

X class: 25 /

Class 25 (MPa) concrete blocks should be specified for most uses.

X nominal thickness: 60 mm

Thickness of blocks depends on site conditions, design requirements and cost.

X top edges: chamfered /

X colour: As specified…

Sub grade

X sub grade levels and falls: see drawings

Check soil and traffic conditions with a Competent Person. The sub-base thickness is a function of both the type and amount of traffic to be carried and the strength of the sub grade. See also *SANS* 1200 ME, MF, ML.

weed killer

X treat area to be paved with *suitable* weed killer: required / not required

levels, falls, pattern

X levels and falls: see drawings

A fall of 1:60 is regarded as an optimum fall. Gradients of 1:100 are less forgiving (workmanship, settlement).

X pattern: see drawings / herringbone / basket weave / stretcher / waving

Edge restraints along the perimeter of the paving is necessary to prevent lateral spread of the units and to retain the bedding course sand. See concrete culverts, kerbs etc. below.

21.1.3 Laying

X type of paving: see drawings / flexible block/brick / flexible slab / rigid block / in situ concrete

21.5 Fencing

X type: see drawings

line wire on steel posts, stays, droppers and standards / wire chain-link mesh on strain wire on steel posts, stays, droppers and standards / welded mesh / barbed tape / palisade / electric / private swimming pool

21.5.1 Line wire and chain-link mesh fencing

X type wire: 1 /

1 (zinc coated) / 2 (zinc coated and PVC coated).

X nominal size mesh of chain-link wire: 50 mm

posts, stays, standards, droppers

X type: steel /

erection

X fence height: see drawings

/ 1 200 mm

fencing gates

X size, shape: see drawings.

21.5.2 Weld mesh fencing

X material: mild steel /

High tensile steel (>950 MPa); very high tensile steel (>1 250 MPa).

X mesh size: 50 x 50 mm

X finish: hot dip galvanized /

X fence height: see drawings

1 200 mm

Relevant standards:
SANS 1200 MJ Segmental paving.
Precast concrete paving blocks – laying manual. The Concrete Masonry Association.
Technical guide: Clay Pavers & Paving – selection and construction guidelines. Corobrik.
SANS 10244 Zinc and zinc-alloy coatings on steel wire.
SANS 10104 Hand railing and ballustrading (safety aspects).
SANS 14001 Environmental management systems.

22 General requirements

In accordance with the principles of separation in procurement documentation, these items fall under the headings Construction and Management of the scope of work (refer to Table C1 of *ISO 10845 Construction Procurement Part 2: Formatting and compilation of procurement documentation*).

The sample clauses shown here (not comprehensive) may need to be considered when compiling the scope of work for a particular project.

See also *SANS* 1921 Construction and Management requirements for works contracts.

See also Annex B of individual *SANS* 2001 standards.

22.1 Order of preference

X Annotation on drawings and any particular takes preference over the General Specification.

22.2 Descriptions in Bills of Quantities

X Descriptions in Bills of Quantities are not considered to be specifications.

22.3 Site

X location: Carnarvon – Northern Cape Province…

X climatic zone *SANS* 204: / 6 /

1 (cold interior) / 2 (temperate interior) / 3 (hot interior) / 4 (temperate coastal) / 5 (sub-tropical coastal) / 6 (arid interior) / 7 (very hot interior). *SANS* 204 lists towns and their climatic zone.

X site atmospheric corrosivity category ISO 9223: For Carnarvon – Northern Cape Province

C1 – very low (interior dry) / C2 – low (interior: occasional condensation exterior: exposed rural inland) / C3 – medium (interior: high humidity, some air pollution; exterior: urban inland or mild coastal) / C4 – high (interior: swimming pools, chemical plant, etc.; exterior: industrial inland or urban coastal) C5 – very high (exterior: industrial with high humidity or high salinity coastal).

22.4 Occupancy

X class of occupancy or building: ...

see table 1, *SANS* 10400-A.

22.7 Materials and products

X Materials and products are to be manufactured in South Africa unless an imported product is prescribed specifically, or when no *suitable* locally manufactured product for the specific use is available.

22.8 Materials storage

X Provide materials storage facilities as follows: As indicated in the Bill of Quantities

X store materials according to manufacturer's instructions, and

- **X** under cover and off ground
- **X** taking care during handling to avoid breaking, chipping, scratching, staining, soiling
- **X** roofing and cladding sheets – lift, do not drag
- **X** doors: flat (not on edge) on level surface in dry and well ventilated building.

22.9 Documentation

X Description of an item implies the complete supply, assembly and operation of the item unless otherwise specified

X use figured dimensions in preference to scaled dimensions

X in the case of discrepancies, vagueness and doubt in contract documentation, request clarification in writing.

22.10 Standards

X Materials, components or products in this specification specified by reference to South African National Standards (*SANS)*, are deemed to be the latest edition, including all amendments, published three calendar months or longer before the closing date of tenders.

Three calendar months may not be realistic for ascertaining the contract validity of the latest standard edition. It may take years for a new standard to become accepted. A better way would be to include the date and amendment number with the *SANS* reference number, but this means a lot of checking.

The non-use of trade names in contract documents is mandatory for government work or work funded with public money.

X products that are specified as mark bearing must bear the mark of the relevant standards body.

X keep evidence in the form of delivery slips, certificates or other written proof that material or components comply with the standards as laid down in this specification.

X application may be made for the use of materials, products or components that do not comply with the specified standards on condition of any or all of the following:

- **X** a sample for inspection
- **X** proof of quality
- **X** test reports
- **X** capability reports on the factory
- **X** a saving in cost.

22.11 Agrément and MANTAG

X It may be a condition of Agrément or MANTAG certification that only accredited contractors are entitled to use, install, erect or construct the certified product, material, component, building element or system. In such cases a copy of the relevant certificate shall be kept on site and be available for inspection by authorised inspectors at all times.

22.16 Guarantees

X Provide written guarantees for the stated period for the following:

- **X** five years on tiled roofs
- **X** ten years on waterproofing
- **X** five years on latent defects in acrylic baths
- **X** one year on the efficient and safe working of the whole of the electrical installation; lighting bulbs and tubes are excluded
- **X** five years on delamination and colour degradation of laminated safety glass and/or hermetically sealed glazing units
- **X** fifteen years on powder coating, issued by the manufacturer of the powder; the specific conditions contained in this guarantee shall form part of the powder coating process and may only be applied by an approved applicator

22.17 Specialist firms

X Specialist firms licensed by the manufacturer are required for the following works:

- **X** tile roofing
- **X** sheet roofing
- **X** waterproofing

X Specialist firms required to be members of an Association

22.18 Trained artisans

X The following work is required to be done by trained artisans:

- **X** masonry
- **X** tiling

- **X** concrete flooring
- **X** solid wood flooring
- **X** joinery
- **X** waterproofing

22.19 Registered workmen

X The following work is required to be done by registered workmen:
- **X** plumbing and drainage
- **X** electrical work

22.20 Maintenance manual

X Full particulars of the following items are to be included in a hardcopy maintenance manual:
- **X** training for ...
- **X** spare products e.g. luminaires, tiles
- **X** painting
- **X** waterproofing

22.21 Tools and spare parts

X Provide full particulars of tools and spare parts of
- **X** mechanical services

22.22 Certificates of conformance/compliance/performance

X Provide the following certificates of conformance/compliance/performance:
- X architectural aluminium products (windows, doors, partitions, skylights): relevant AAAMSA Performance Certificate; Certificate of Conformance that all anodizing or powder coating has been processed in accordance with *SANS* 999 and *SANS* 1796 respectively; Certificate of Conformance that glazing has been installed in accordance with *SANS* 10137, ensuring that safety glazing materials have been installed in the mandatory areas and that each individual pane of safety glazing has been permanently mark-bearing
- **X** lightning protection: Certificate of Compliance with *SANS* 10313/62305

22.23 Keys

X Procedure for delivery of the following important keys is required; on no account shall these keys be delivered to the building site; arrange with manufacturer to have key(s) sent to ... by registered post, giving following particulars: manufacturer's name; manufacturer's door number; class of door; size of door; name of contractor by whom ordered; building and room where installed: …
- X strongroom(s)

22.24 Site inspection by supplier/manufacturer

X A qualified agent of the following supplier(s)/ manufacturer(s) is required to do site inspection and confirm *approval* in writing in site instruction book:
- **X** paint manufacturer: > twice during course of paintwork
- **X** sheet roofing: ...
- **X** waterproofing: ...

22.26 Quality control

X The following quality control procedures, rules for substitutions, and definitions of the required quality of manufactured products, fabricated products and built products are required:
- **X** lack of adhesion in screeds/toppings and decision whether repair work is necessary: ...

22.27 Quality assurance

X Provide written proof that all stages of fabrication and installation of the following products have been executed with disciplined quality assurance in accordance with relevant part of *SANS* 9000:

X structural glazing

22.28 Design Responsibility

X The following design responsibilities rest with the manufacturer:

X taking of exact measurements on site is required for

X joinery

X aluminium windows, doors, curtain walling: manufacturer is responsible for taking height of product head above ground into account when selecting products of appropriate performance

22.29 Design improvement

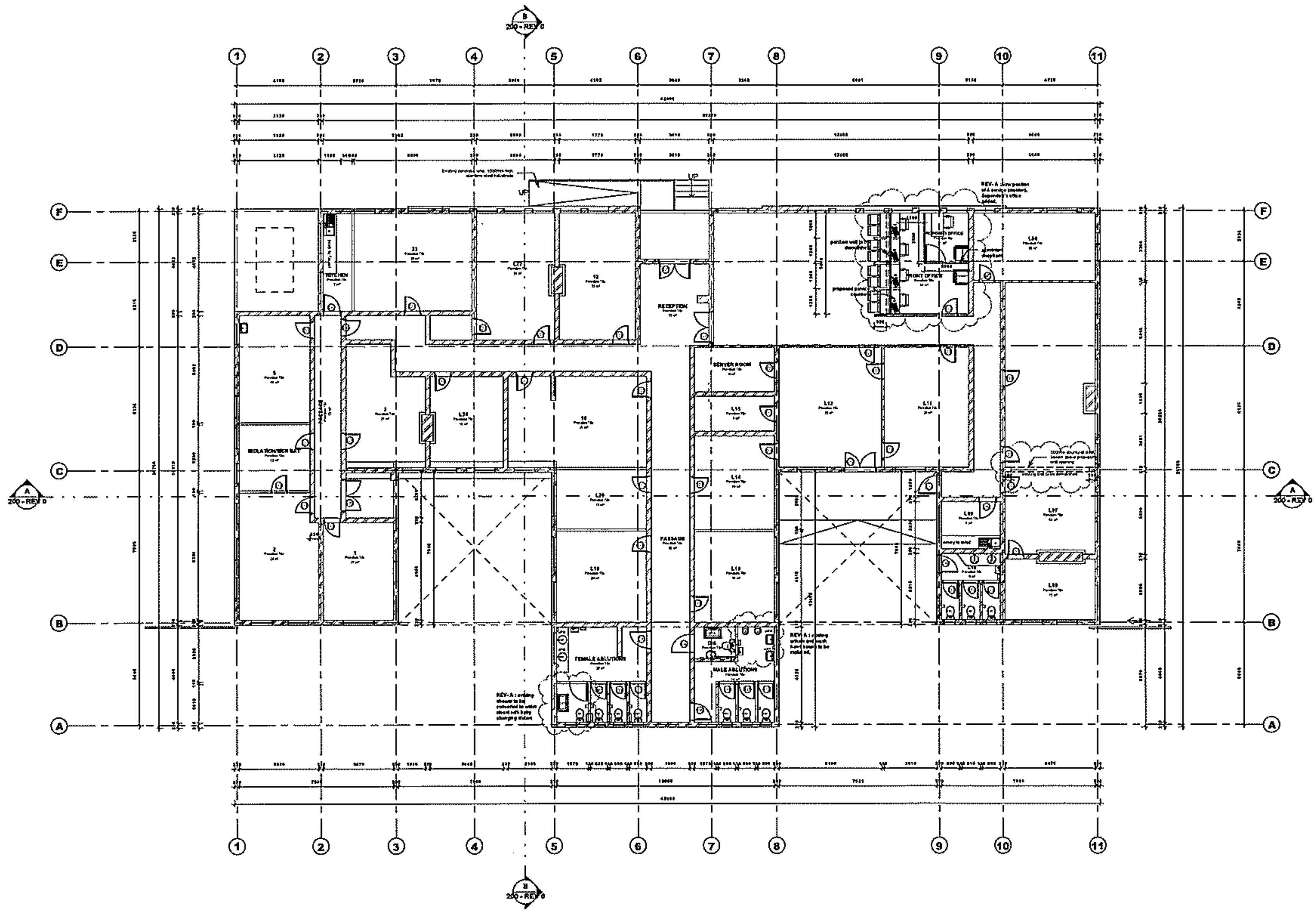
X The following design improvements are allowed:

X metalwork (stainless steel, aluminium, bronze): *suitable* improvements in construction and design affecting neatness, strength, durability or efficient work may be introduced; tenderers are permitted to offer their own *suitable* sections; submit full particulars

22.30 Annexes

X Data sheets, completed returnable schedules, pro forma documents, particular specifications, *drawings*, sketches etc. which are referred to in this document:

DETAILS AND DRAWINGS



GROUND FLOOR LEVEL
1 : 100

NO.	DATE	AMENDMENT	D.P.W.

drawings

certified drawings as per Centralised Drawing Archive DRAWINGS REQUIREMENTS

name: Patrick Kagori
date: 13 August 2017
professional registration no.: PrArch 21025

cad file name: REVIT 2021
page type: A1

public works
Department: Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
MR. NZIWONKE DLABANTU

consultant
KMS ARCHITECTS (PTY) LTD
Kruger Office Park Unit No.7,
100 Marshall Street Tel: (015) 690 0995
Email: admin@kmsarch.co.za
Website: www.kmsarch.co.za
POLOKWANE

discipline: ARCHITECTS

service: DEPARTMENT OF LABOUR; REFURBISHMENT OF EXISTING OFFICE, UPINGTON, NORTHERN CAPE

WCS number: 055532

drawing title: GROUND FLOOR PLAN

ref. no. 21/KMS/101
designed: P.Kagori & R. Masia
scale: As Shown
drawn: Z. Makhubela
date: 2021/08/18 09.11.29
checked: P. Kagori

drawing number: 100 - REV A

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:	***UPINGTON: EMPLOYMENT AND LABOUR: TOTAL REFURBISHMENT OF EXISTING LABOUR CENTRE***				
Tender no:	*KIM 09/2022*	**WCS no:**	*055532*	**Reference no**:	*19/2/4/2/2/2327/192*

C4 Site Information

Access is at the existing Department of Labour, Schroder Street, Upington, Northern Cape.