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FOREWORD

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INTRODUCTION

City Power has installed plumbing systems to distribute hot and cold water to the buildings in its premises. The system was installed and shall be maintained in accordance with SANS 10400 for building standards. For the purpose of safety and uniformity, City Power requires supply and delivery ofPlumbing material that complies with relevant legislature.

1 SCOPE

This specification document details the requirements for the supply and delivery of Plumbing Material that is suitable for both indoor and outdoor purposes. The Plumbing material shall include without being limited to the following; Galvanized iron, Cast iron, Poly-Vinyl Chloride (PVC), brass, Copper, and Polyethylene in line with the BOQ.

2 NORMATIVE REFERENCES

The following document contains provisions that, through reference in the text, constitute requirements of this specification. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

SANS 241-1:2015; *Drinking water Part 1: Microbiological, physical, aesthetic and chemical determinants*

SANS 460:2011; *Plain-ended solid drawn copper tubes for potable water.*

ISO 10380:2012; - *Pipework — Corrugated metal hoses and hose* assemblies

SANS 1307: 2014 *Domestic storage solar water heating systems*

SANS 10306:2010: *The management of potable water in distribution systems*

SANS 10252: 2018 *Water supply and drainage for buildings Part 1: Water supply installations for buildings*

SANS 50713*: 1993:* *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leak tightness under internal pressure of assemblies subjected to bending*

ASTM F 876 *Standard Specification for Cross-linked Polyethylene (PEX) Tubing*

3 DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations in the Normative Reference documents shall apply in this specification.

4 GENERAL REQUIREMENTS

4.1 Operating conditions

4.1.1 The requirements in this specification shall apply to hot and cold water systems for indoor and outdoor conditions as follows.

4.1.1.1 At an altitude above sea level up to 1800m.

4.1.1.2 At ambient air temperatures.

a. Maximum 40 ºC

b. Minimum −10 ºC

4.1.1.3 Relative humidity of not more than 95 %.

4.2 General

4.2.1 Nothing in this specification shall lessen the obligations of the supplier. The supplier shall be fully responsible for the design and satisfactory performance of all plumbing equipment. Approval by City Power shall not relieve the supplier of the responsibility for the adequacy of the material.

4.2.2 All materials, including surface protection materials, that are intended to be in contact with potable water, shall be non-toxic, shall not cause the water to become toxic, and shall not impart any colour or objectionable odor to the water if tested in accordance with of SANS 241-1 to ensure quality of drinking water.
4.2.3 Plumbing material shall comply with SANS 10306:2010 which governs drinking water supply systems.
4.2.4 Polymeric materials (Components in contact with portable water), these components shall comply with the relevant material requirements specified in SANS 1307.
4.2.5 Polymeric material shall have been protected from the effects of ultraviolet light by incorporation of acceptable ultraviolet (UV) stabilizer(s) in appropriate quantities. This shall be verified by means of a declaration by the local supplier with supporting technical evidence.
4.2.6 Polyethylene piping (PEX), shall be resistant to temperature extremes, chemical attack and creep deformation and comply with ASTM F 876

4.3 Pipe connections

4.3.1 The copper and metal pipes used for connecting and assembling in portable water systems and connecting pipes shall comply with SANS 460.
4.3.2 Seams on the outer casing and the entry holes for pipe connections shall be effectively sealableto make a permanent watertight closure.
4.3.3 All exposed piping or fittings (or both) which form part of the supply system shall be of a non-corrosive material.

4.4 Pipe material

4.4.1 Material, pipes, fittings, components and fixtures shall all comply with the requirements stated in SANS 10252 –For water supply installations in buildings.
4.4.2 Piping shall comply and be compatible for SANS 10400 plumbing standards which includes user manuals.
4.4.3 Fittings and components, of which the type and quality shall comply with South African plumbing standards (SANS 10400) which includes Corrugated metal hoses and hose assemblies
4.4.4 Pipes, fittings and components shall, when necessary, have protection against freezing. The insulation provided shall be appropriate to the minimum temperatures to be expected in that geographical area.
4.4.5 Pipe work shall be designed to withstand the expected working pressures and temperatures. The pipe network layout for both hot and cold water systems shall be such that length and directional changes are minimized.

4.5 Guarantee and Warranty

4.5.1 The Plumbing material shall have a minimum guarantee period of 10 years and a warranty period of one year (12 moths). In accordance with legislature and manufacturer standards.
4.5.2 A minimum design life expectancy of 15 years shall be provided.

5 TESTS

All material shall comply with the relevant SANS standards.
Steel pipes shall comply with SANS 62; 2013 part one and part 2 when tested.
The following test shall be undertaken on the steel material;

5.1 Weld integrity
5.2 Hydraulic Pressure test
5.3 Corrosion resistance

The following test shall be undertaken on plastic piping systems.

5.4 Leak tightness test
5.5 Pressure cycle test
5.6 Thermal test
5.7 Internal pressure test

6 MARKING AND LABELLING

6.1 The packaging, marking, and documentation within and outside the packages shall comply special standards.

6.2 The following information shall appear on appear all packaging and or material in accordance with the relevant legislature such as SABS 966 - 1

a) SABS Mark.
b) SABS Specification number.
c) Nominal pipe size.
d) Pressure class.
e) The designation “PVC-U” or “PVC-M”.
f) Manufacturer’s trade name or trade mark.

7 DOCUMENTATION

The documents (in English) shall be supplied to City Power in both hard and soft copy as the following:

7.1 Technical product catalogue; operating and installation manuals shall be provided.
7.2 Full detailed dimensions drawings shall be provided.
7.3 A warranty policy document (10 years),
7.4 A copy of all type test report (plus certification) shall be provided where applicable
7.5 An SABS Mark of Approval certificate.

8 QUALITY MANAGEMENT

A quality management System shall be set up in order to assure the quality of Plumbing Material during design, development, production and servicing. Guidance on the requirements for a quality management System may be found in the following standards: ISO 9001:2015. The details shall be subject to agreement between the purchaser and supplier.

9 ENVIRONMENTAL MANAGEMENT

An environmental management plan shall be set up in order to ensure the proper environmental management and compliance of the Plumbing Material through its entire life cycle (i.e. during design, development, production, installation, operation and maintenance, decommissioning as well as disposal phases). Guidance on the requirements for an environmental management System may be found in ISO 14001:2015 standards. The details shall be subject to agreement between City Power and the Supplier. This is to ensure that the asset created conforms to environmental standards and City Power SHERQ Policy.

10 HEALTH AND SAFETY

A health and safety plan shall be set up in order to ensure proper management and compliance during manufacture, installation, removal, transportation, and disposal. Guidance on the requirements of a health and safety plan shall be found in ISO 45001:2018 standards. The details shall be subject to an agreement between City Power and the Supplier

ANNEXURE A Bibliography

None

ANNEXURE B – Revision information

DATE	REV.NO	NOTES
March 2020	0	First issue
October 2024	1	Second issue General editing Updated ISO on clause 10 Updated year on SANS 10252

ANNEXURE C- Technical schedule A and B for Plumbing Material

Schedule A: Purchaser's specific requirements
Schedule B: Guarantees and technical particulars of equipment offered

Item	Sub-clause of CP_TSSPEC_286	Description	Schedule A (Required)	Schedule B
		Name of OEM	**Required**	
	4.1	**Operating Conditions**	**XXXX**	**XXXX**
1	4.1.1.1	At an altitude above sea level up to	1 800m;	
2	4.1.1.2	At ambient air temperatures;	State	
3	a)	Maximum	40 ºC	
4	b)	Minimum	−10 ºC	
5	4.1.1.3	Relative humidity of not more than	95 %.	
7	4.2.1	The supplier shall be fully responsible for the design and satisfactory performance of all material	Required	
8	4.2.2	All materials, tested in accordance with of SANS 241-1 to ensure quality of drinking water.	Required	
9	4.2.3	compliance of all material with SANS 10306:2010	Required	
10	4.2.4	Compliance of Polymeric materials (contact with portable water), comply with the relevant material requirements specified in SANS 1307.	Required	
11	4.2.5	Declaration by local supplier of Polymeric materials protection from the effects of ultraviolet light with supporting technical evidence.	Required	
12	4.2.6	Polyethylene piping (PEX), Compliant with ASTM F876	Required	
14	4.3.1	The copper and metal pipes compliance with SANS 460.	Required	
15	4.3.2	Seams on the outer casing and the entry holes effectively sealable to make a permanent watertight closures.	Required	
16	4.3.3	All exposed piping or fittings is of non-corrosive material.	Required	
17	4.3.1	The copper and metal pipes compliance with SANS 460.	Required	
18	4.4.1	Material, pipes, fittings, components and fixtures comply with SANS 10252	Required	
19	4.4.2	Piping compatible for SANS 10400	Required	
20	4.4.3	Fittings and components, comply with (SANS 10400)	Required	
21	4.4.4	Pipes, fittings and components have protection against freezing where required.	Required	
22	4.4.5	Pipe work is designed to withstand the expected working pressures and temperatures	Required	

Note: Ticks [√, X], Asterisk [*], Word [Noted] or TBA ["to be advice"] shall not be accepted.

Tender Number: _____

Tenderer's Authorised Signatory: _____ _____

Name in block letters Signature

Full name of company:_____

ANNEXURE C- Technical schedule A and B for Plumbing Material (Continued)

Schedule A: Purchaser's specific requirements
Schedule B: Guarantees and technical particulars of equipment offered

Item	Sub-clause of CP_TSSPEC_286	Description	Schedule A (Required)	Schedule B
23	4.4.1	Material, pipes, fittings, components and fixtures comply with SANS 10252	Required	
24	4.4.2	Piping compatible for SANS 10400	Required	
25	4.4.3	Fittings and components, comply with (SANS 10400)	Required	
26	4.4.4	Pipes, fittings and components have protection against freezing.	Required	
27	4.4.5	Pipe work is designed to withstand the expected working pressures and temperatures	Required	
		TESTS	**XXXX**	**XXXX**
28	5.	All material shall comply with the relevant SANS standards when tested as to clause 5.	Required	
		MARKING AND LABELLING	**XXXX**	**XXXX**
29	6.	The packaging, marking, and documentation has been labelled as to clause 6.	Required	
		DOCUMENTATION	**XXXX**	**XXXX**
30	7.	All the required documents (in English) shall be supplied to City Power in both hard and soft copy as the following as to clause 7	Required	
		QUALITY MANAGEMENT	**XXXX**	**XXXX**
31	8.	A quality management System as to clause 8	Required	
		ENVIRONMENTAL MANAGEMENT	**XXXX**	**XXXX**
32	9.	An environmental management plan as to clause 9	Required	
		HEALTH AND SAFETY	**XXXX**	**XXXX**
33	11.	A health and safety plan as to clause 10	Required	

Note: Ticks [√, X], Asterisk [*], Word [Noted] or TBA ["to be advice"] shall not be accepted.

Tender Number: _____

Tenderer's Authorised Signatory: _____ _____

Name in block letters Signature

Full name of company:_____

TECHNICAL SCHEDULES A AND B

DEVIATION SCHEDULE

Any deviations offered to this specification shall be listed below with reasons for deviation. In addition, evidence shall be provided that the proposed deviation will at least be more cost-effective than that specified by City Power.		
Item	**Sub clause of CP_TSSPEC 286**	**Proposed deviation**

Tender Number: _____

Tenderer's Authorised Signatory: _____ _____

Name in block letters Signature

Full name of company: _____

ANNEXURE D – Stock item

Not applicable