health
Department
Health
PROVINCE OF KWAZULU-NATAL

Quotation Advert

Opening Date:	2019-07-15
Closing Date:	2019-08-02
Closing Time:	11:00

INSTITUTION DETAILS

Institution Name:	King Edward VIII hospital
Province:	KwaZulu-Natal
Department or Entity:	Department of Health
Division or section:	Central Supply Chain Management
Place where goods / services is required	KING EDWARD VIII HOSPITAL LAUNDRY
Date Submitted	2019-07-12

ITEM CATEGORY AND DETAILS

Quotation Number:	ZNQ: KM 142\ 19
Item Category:	Services
Item Description:	REPLACE AUTOCLAVE NO:3 IN CSSD AS PER ATTACHED DOCUMENT
Quantity (if supplies)	01

COMPULSORY BRIEFING SESSION / SITE VISIT

Select Type:	Compulsory Site Visit
Date :	2019-07-22
Time:	11H00
Venue:	**KING EDWARD VIII HOSPITAL OUTSIDE MAINTENANCE**
QUOTES CAN BE COLLECTED FROM:	COLLECTED AT SITE MEETING
QUOTES SHOULD BE DELIVERED TO:	**KING EDWARD VIII HOSPITAL TENDOR BOX**

ENQUIRIES REGARDING THE ADVERT MAY BE DIRECTED TO:

Name:	KHULANI MTHEMBU
Email:	KHULANI.MTHEMBU@KZNHEALTH.GOV.ZA
Contact Number:	031 360 3446
Finance Manager Name:	MISS NOMONDE NCUME
Finance Manager Signature:	

No late quotes will be considered

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

KING EDWARD HOSPITAL: INSTALLATION OF 1 X 400L SINGLE DOOR AUTOCLAVE

1.1 SCOPE OF CONTRACT

i) Disconnect, uplift and relocate the two existing CSSD autoclaves situated in the autoclave plant room and hand over to maintenance to the workshop or to an area identified by hospital maintenance personnel.

ii) Supply, deliver to site and install the new autoclave in the position vacated by the above old units.

iii) The existing front fascia board / cover shall be removed together with the existing autoclave as a new stainless steel front fascia/cover shall be allowed for and be, supplied fixed to the new autoclaves as standard, installed to close off the space between the autoclave and the wall opening.

iv) A stainless steel architrave shall be installed after the installation of the new autoclave to suit the altered/new stainless steel front cover.

v) The new autoclaves shall be connected to the existing services as required.

vi) Supply and install a Water Softening Plant where it is required.

1.2 EXECUTION PERIOD

Eight (8) Weeks as the completion period for the Contract from the date of site handover.

1.3 GUARANTEE PERIOD

The guarantee period for the Mechanical Work and all materials must be a minimum of **Twelve Months** from the date of commissioning.

1.4 OCCUPATIONAL HEALTH AND SAFETY FILE

The successful bidder shall submit a Health and Safety File to the institution, to be approved by the Hospital / Department of Health and Safety Officer, before the comment of work on site.

1.5 SITE AND MODE OF PROCEDURE

Bidders are to visit site to ensure successful installation of all the equipment specified.

Bidders are advised that the existing premises will be occupied throughout the period of the contract.

Damage to the existing buildings - Bidders to note that any damages done or occurring to any of the buildings will be repaired at the expense of the contractor/Bidder.

The repairs must be to the satisfaction of the KwaZulu-Natal Department of Health.

Bidders are advised to visit the site prior to tendering and to acquaint themselves with the nature of the work to be done and access to the siting of the existing buildings etc., as no claim will be allowed on the grounds of ignorance of the conditions under which the work will be executed.

1.6 SATISFACTORY INSTALLATION

The whole of the installation shall be carried out in accordance with the South African Bureau of Standards Code of Practice for the application of National Building Regulations, the KZNPA Standard Preambles to all Trades and the Occupational Health and Safety Act and Regulations of 1983 as amended.

Standard Preambles can be accessed on the Departmental website at http://www.kznhealth.gov.za/

1.7 TECHNICAL SPECIFICATION

These works are to be carried out in accordance with the Technical Specification Part 2 and Particular Specification Part 3 hereinafter.

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

KING EDWARD VIII HOSPITAL: CSSD AUTOCLAVE INSTALLATION

2. TECHNICAL SPECIFICATION

2.1 COMPLIANCE WITH REGULATIONS AND STANDARD SPECIFICATIONS

a) The operation, construction, material and components of the sterilizer, as specified, shall comply with the latest requirements of:

   i) The Occupational Health and Safety Act (Act 85, 1993) as amended.
   ii) The South African Bureau of Standards Specification SANS 982-1990 except where this Technical Specification is at variance, in which case this Technical Specification shall take precedence, or as otherwise approved.

b) A Certificate issued by the inspection authority under whose supervision the pressure vessel is manufactured shall be provided.

c) The chamber and jacket shall be of the standard double wall-fabricated construction, designed and manufactured in accordance with B.S. 5500 or equivalent and approved.

d) The control panel, associated components and wiring shall be installed in compliance with the Department of Public Works and Land Affairs Standard Specification for the Electrical equipment and Installation for Mechanical Services Issue VIII September 1984.

e) Bacteriological filters shall comply with B.S. 3970 or equal and approved.

f) Loading equipment shall comply with SANS 982-1990.

g) SANS 0142: Code of Practice for Wiring of Premises.

h) SANS 60947-1: 2005/IEC 60947-1: 2004 to SANS 60947-8: 2004/IEC 60947-8: 2004: Low voltage switch gear and control gear.

i) All building works shall be in accordance with the Standard Preambles to All Trades.

j) An Electrical Certificate of Compliance, in accordance with the OHS Act as amended will be required for all Electrical Works.

k) Inspection and testing on site, by an approved inspection authority, shall be carried out prior to commissioning and after installation, in accordance with the Vessels under Pressure Regulations, Regulation 13. (1) (a) of the OHS Act, as amended.

l) It is required that the manufacturer has a quality management system in place, which complies with the terms of ISO 9001, 2015, as applicable to the design and manufacture of medical and laboratory sterilizers

m) The contractor should fully familiarise himself with the above documents prior to quoting.

2.1 2.2TYPE AND SIZE OF 0,4 m³ STERILIZERS.

a) The sterilizer shall be of the rectangular, horizontal, recessed, high pressure, high speed, pulsing, single door, jacketed type, and shall be suitable for sterilizing instrument packs and porous loads and, when specified, fluids. The sterilizer shall have a chamber capacity of not less than 0,4 m³ and the internal dimensions of the chamber shall be 460mm wide x 460mm high x 760mm deep.

b) The overall size shall be approximately 760mm wide x 1900mm high x 1200mm.

c) The sterilizer is required to operate at a pressure of 240-kPA gauge. The operating temperature shall be 138°C.

2..2.3 STERILIZING CHAMBER AND JACKET

a) The sterilizing chamber shall be constructed of Stainless Steel clad, mild steel OR entirely from grade 304 ℓ Stainless Steel.

b) A solid head-ring shall be welded to the open end of the autoclave. The head-ring shall support the clamps, which hold the door, and have machined into it a groove, which accommodates a silicone gasket. The depth of the groove shall be sufficient to ensure that the gasket can be fully retracted when a vacuum is drawn behind it.

c) The chamber shall be constructed in such a way as to facilitate the fitting of internal shelves or the use of internal and external loading equipment.

d) One end of the sterilizing chamber shall be closed by a suitably reinforced flat end, which shall be of the same material as the chamber and shall be welded thereto.

e) The jacket of the sterilizer shall be manufactured from grade 430A boiler plate or grade 304 ℓ stainless steel and be designed to operate at a pressure of 240 kPA g and the sterilizing chamber shall operate at a similar pressure alternating with absolute vacuum.

f) Note: The designed safe working pressure shall be such that the safety valve shall reset, once operated, at a pressure greater than the required operating pressure, to ensure that the safety valve does not " weep".

g) On completion of manufacture, the chamber and jacket shall each be subjected to a hydraulic test, in accordance with the Code of Construction.

h) Steam shall be admitted to the chamber behind a baffle, which will prevent direct steam contact with the load.

i) NOTE: - The Manufacturer shall provide a written 5-year guarantee for the chamber and jacket, in respect of any stress-related failure, which arises from faulty manufacture.

2. 2.4 STERILIZER DOOR

a) The sterilizer door shall be as specified in the particular specification. The sterilizer door shall be of the automatic vertical sliding, counter balanced type. The door shall be fabricated from the same material as the chamber.

Means shall be provided, in respect of automatic doors, to stop the vertical travel of the door should it come in contact with any obstruction such as a protruding tray, pack or the operator's hand. Note: A slipping clutch system will not be acceptable. Suitable provision must be made to limit the vertical travel to the fully closed position.

The door shall be sealed by means of a steam inflated gasket, which when deflated shall be retracted by vacuum to a position free from contact with the door. The gasket must be capable of ensuring a steam and vacuum tight joint and be designed to withstand a pressure in the chamber of 480 kPA g or absolute vacuum.

b) Means shall be provided so that :-

i) The rise of pressure inside the chamber is prevented, prior to the door being completely closed and locked in position.

ii) The sterilizing cycle cannot be commenced until the door is fully closed and locked in position.

iii) The release of the door from the closed and locked position is prevented unless the pressure inside the chamber has been reduced to atmospheric pressure.

iv) The door cannot be opened either automatically or manually until the sterilizing cycle has been fully completed.

v) The chamber is effectively vented to atmosphere before the door opening mechanism is released.

2.2.5 CONTROL SYSTEM

a) The control system shall be automatic. The type of control system will be specified in the particular specification and shall be either:

i) Programmable logic control (PLC); or

ii) Microprocessor/(PC) type.

b) Control systems shall be installed in such away as to prevent electro-magnetic interference. The controller shall be properly protected against lightning hazards, power surges, mains-borne and other noise interference to prevent malfunctioning of the system. The suppresser shall be as "PONTECH KLEEN-LINE" or other approved.

c) A cycle counting facility of the non-cancelable type shall be provided, which may be displayed either on the front facia or be mounted in the control panel.

d) The function of all contactor's shall be clearly marked. All wiring terminations shall be numbered in accordance with the wiring diagram.

e) Control panels shall incorporate a suitably rated lockable electrical isolating switch.

f) Mains power supply failures of up to 60 seconds shall not abort the sterilizing cycle process.

2.2.6 OPERATION

2.2.6.1 INSTRUMENT PACKS AND POROUS LOADS CYCLE

a) The removal of air from the loaded chamber shall be by means of a pulsing system as hereafter specified. The sequence of operation shall be effected automatically and without manual interference once each cycle is commenced.

b) To commence the cycle the chamber is loaded and the door is closed and locked by means of a push button. When the start button is pressed the following sequence of stages shall commence:

2.2.6.1.1 STAGE 1: AIR REMOVAL

a) Sufficient air shall be removed from the loaded chamber to permit achievement of the temperature-time relationship during Stage 2.

b) The automatic control shall be capable of providing the following sequence of events during Stage 1:

i) Reduction of pressure within the loaded chamber to a reduced pressure of – 80kPA g.

ii) Admit steam to restore pressure within the chamber to a positive pressure of + 30kPA g.

iii) Close off steam. Reduction of pressure within the loaded chamber to a reduced pressure of – 80kPA g.

iv) The conditions specified under (ii) and (iii) shall be repeated a further three times to give a total of four pulses.

The automatic control shall then change to Stage 2. The vacuum pump shall continue to run throughout the following stages.

2.2.6.1.2 STAGE 2: STERILIZATION

a) Steam shall be admitted to the chamber to provide sterilizing conditions within the chamber load. The temperature shall be sensed and indicated from the chamber drain and shall accord with the following time-temperature relationship. Within the total stage a temperature of 135°C shall be maintained for not less than four minutes.

b) If at any time during the timed sterilizing period of four minutes the temperature should fall below 135°C, the timer shall automatically reset to starting point and shall only start timing again when the correct temperature has been restored in order to guarantee that, at the end of the sterilizing period, the load in the chamber has been continuously subjected to steam at a temperature of 135°C for a period of four minutes.

c) The automatic control shall then change the process to Stage 3. Visual indication that the sterilizing period is in operation must be provided.

2.2.6.1.3 STAGE 3: EXHAUST AND DRYING

a) The automatic control shall close the steam to the chamber valve and open the exhaust to condenser and water to condenser valves. Visual indication that the exhaust and drying stage is in progress shall be provided.

b) When the chamber pressure has been reduced to – 80kPA g the drying timer shall start and run for 6 minutes after which the process shall change to Stage 4.

2.2.6.1.4 STAGE 4: AIR ADMISSION

a) Means shall be provided for the drying vacuum, specified in Clause 2.6.1.3 above, to be broken via a bacteriological air filter.

2.2.6.1.5 STAGE 5: CYCLE COMPLETE

a) Visual indication that the full sterilizing cycle is complete shall be provided, after which the door can be opened.

2.2.6.1.6 CYCLE ABORT

a) The control circuit shall include a facility to monitor the time taken to attain the required pressure, vacuum and temperature conditions. Should any of the required conditions not be met (within a period which shall be adjustable up to 15 minutes) per stage, the cycle shall abort by proceeding through stages 3, 4 and 5 after which an audible alarm and indicator lamp shall indicate an unsterile cycle, at which point it shall be possible to open the sterilizer door.

2.6.2 BOWIE AND DICK TEST CYCLE

a) All vacuum sterilizers which process porous loads shall be provided with a dedicated Bowie and Dick test cycle. The Bowie and Dick test cycle shall be as specified in 4.6.1 except that the sterilizing temperature shall be 134°C and the sterilizing time shall be 3.5 minutes.

2.6.3 FLUIDS CYCLE

a) When specified (in the particular specification) the sterilizer shall be supplied with a fluids cycle.

b) A selector switch shall be provided which when turned to fluids and the start button is pressed the following sequence of stages shall commence:-

2.6.3.1 **STAGE 1: AIR REMOVAL**

a) The pressure within the loaded chamber shall be reduced to - 80kPA g. The automatic control shall then change to Stage 2.

2.6.3.2 **STAGE 2: STEAM TO CHAMBER**

a) Steam shall be admitted to the chamber via the down draught method until a temperature of 121°C is reached. The automatic control shall then change to Stage 3.

2.6.3.3 **STAGE 3: STERILIZATION**

a) Within the total stage a temperature of 121°C shall be maintained for not less than thirty minutes. The automatic control shall then change the process to Stage 4.

2.6.3.4 **STAGE 4: SLOW EXHAUST**

a) The steam shall be slowly exhausted via a needle (slow exhaust) valve, which shall be set in such a way that the period in which the pressure shall be reduced, from the sterilizing pressure of 105kPA g to a pressure of 14kPA g, shall not be less than twenty minutes in a loaded chamber. The automatic control shall then change to stage 5.

2.6.3.5 **STAGE 5: AIR FLUSH**

a) Air shall be drawn through the chamber via the filter, the open-air valve, chamber drain needle valve and vacuum pump. When the chamber pressure has been reduced to 15kPA g pressure the vacuum pump shall continue to run for ten minutes with the air valve open.

2.6.3.6 **STAGE 6: CYCLE COMPLETE**

a) Visual indication that the full sterilizing cycle is complete shall be provided, after which the door can be opened.

1.6.3.7 **CYCLE ABORT**

a) The control circuit shall include a facility to monitor the sterilizing temperature. Should the temperature of 121°C not be reached and maintained for thirty minutes within a period of one hour, the cycle shall abort by proceeding through Stage 3, 4 and 5 after which an audible alarm and indicator light shall indicate an un-sterile cycle, at which point it shall be possible to open the sterilizer door.

2.6.4 **LEAK TEST FACILITY**

a) An automatic leak test facility shall be provided as per SANS 982-1990 clause 4.4.8.

b) The selection of the leak test shall be by means of a key switch, which shall be clearly marked "LEAK TEST", or by means of a password in respect of microprocessor controls. The key switch shall be mounted on the control panel located at the rear of the sterilizer.

2.6.5 **MILK BOTTLE STERILIZATION**

a) An Autoclave shall be programmed and will have a cycle to sterilize milk bottles, and other similar material equipment, at maximum temperature of 121°C and maximum time of 10 minutes.

2.7 **STEAM JACKET DISCHARGE**

a) When the condensate discharge is connected to the condensate return line the jacket condensate discharge line shall be provided with a balanced pressure thermostatic steam trap, non-return valve and strainer.

2.8 CONDENSATE DISCHARGE TO DRAIN

a) The condensate discharge line from the jacket and chamber shall be provided with a suitable air break before discharging into the drain. A means shall be provided to prevent the emission of steam and vapour from the air break.

2.9 DRAIN DISCHARGE

a) The temperature of water, which is discharged to drain, shall not exceed 70°C.

2.10 EXHAUST DISCHARGE

a) The sterilizer shall be provided and fitted with a condenser of sufficient capacity to condense the exhaust steam. The water supply to the condenser shall be automatically controlled.

b) A water feed tank, with ball valve and overflow outlet, piped to drain shall be incorporated via which the waste water from the condenser system shall be partially recycled in such a way as to conserve water, but to avoid loss of efficiency.

2.11 SAFETY VALVES

a) The sterilizer shall be fitted with a bronze safety valve of the vertical, direct spring-loaded type, the spring and seat of which shall be stainless steel, with screwed side discharge, directly connected to the steam space at the top of the jacket by a pipe of minimum length.

b) The safety valve shall be capable of being set and locked by means of a lock and key.

c) The safety valve shall be set in accordance with Regulation 6 of the OHS Act, as amended.

d) The safety valve shall be drained by means of a tail pipe, connected via a "T" piece to form a drain pocket, located so as to drain at the valve discharge connection point.

e) All safety valves shall be piped separately to a safe, but visible point outside of the plant room building. Wherever practicable the safety valve pipeline shall be graded to ensure that condensate flow is away from the safety valve.

2.12 AIR ADMISSION

a) Air admission to the sterilizer to break the chamber vacuum shall be through a bacteriological filter, which shall be manufactured in accordance with BS 3970. The filter shall be located at least 1220mm above floor level. The filter element shall be easily replaceable. The filter shall be attached by means of a threaded or compression type fitting.

2.13 VACUUM PRODUCTION

a) The vacuum shall be produced by a water ejector and centrifugal water feed pump which shall be capable of producing and maintaining a reduced pressure of –80kPa g, at sea level.

2.14 THERMAL INSULATION AND CLADDING

a) The sterilizer jacket shall be insulated externally however, where the autoclave jacket is manufactured from stainless steel fibreglass wool type insulation will not be acceptable. Insulation cladding of aluminium sheet of 0.9mm thickness, or composite insulation board with a bonded aluminium foil finish, will be acceptable. The cladding surface temperature shall not exceed 50°C while in operation.

2.15 STERILIZER FASCIA AND FITTINGS

a) The sterilizer shall be provided with a 0,9 mm thick, grade 304 ℓ, number 3 finish (satin) front fascia and architrave, sized to overlap the sterilizer opening after the removal of the existing old unit. The fascia shall have no sharp edges

and when fixed in position shall fit tight against the wall opening. The fascia shall be as described under section 5 hereinafter.

b) The following instruments and fittings shall be provided on the front panel:

i) One pressure gauge calibrated 0-400 kPA g to register jacket pressure and with the maximum working pressure marked on the dial in red.

ii) One compound pressure gauge calibrated -100 to 400-kPA g to register chamber pressure. The maximum working pressure shall be marked on the dial in red. The minimum chamber vacuum shall be marked on the dial in green.

iii) A temperature-sensing device calibrated 0 to 150°C to indicate the temperature to an accuracy of within 1°C at 136°C.

iv) Gauges shall be 100mm diameter or approximately 72mm x 72mm or other approved

v) Indicator lamps or LCD indication of cycle status, temperature and pressure as applicable.

vi) A cycle counter shall be provided
A printer of the ribbon cassette/paper roll type shall be provided and shall record a minimum of:

- Cycle stages: time, temperature, pressure.
- Cycle number and date.
- Cycle status e.g. "Non Sterile"

vii) Main control switch.

- The autoclave number (e.g. 1 or 2 or 3 etc.) shall be screen printed, or etched, onto stainless steel, or aluminium plate, of approximately 50mm x 50mm and attached to the fascia, or where otherwise indicated; or as otherwise approved.
- A suitably wide protective rubber, or PVC, strip shall be fitted to the autoclave facia, or as otherwise specified, to prevent, proprietary loading equipment impact damage.
- All gauges shall be vapour proof with non-ferrous metal casings.
- All the above mentioned instruments and fittings shall be flush mounted.

2.16 VALVES AND PIPING

All control valves shall be electrically activated. Steam valves shall be fitted with Teflon discs.

The following specified valves, or other approved, shall be installed for:

a)	Steam to jacket and to steam to chamber	20mm Ø	Asco SCE 222 A049
b)	Exhaust valve and blowdown valve	20mm Ø	Asco SCX E220 A5
c)	Chamber bleed valve and boiler water valve	15mm Ø	Asco SCX E220 A3
d)	Steam to gasket valve	8mm Ø	Asco SCH TX B320 A184
e)	TDS valve	8mm Ø	Birket 13018P

f) The main cycle control valves, namely: steam to jacket; steam to chamber; exhaust; vacuum break, shall be electrically activated. Steam valves shall be fitted with Teflon discs.

g) Copper piping used, shall be to SANS 460: 2003- Class 2.

h) Compression fittings shall only be used for connections to fittings, which require removal for servicing.

2.17 PRESSURE CONTROL

2.17.1 Direct Steam Autoclave

Control of steam pressure shall be by means of a suitably rated pressure switch controlled, normally closed, solenoid valve. The pressure shall modulate in such a way that the safety valve will not operate prematurely.

2.17.2 Integral Steam Generator Autoclave.

a) The sterilizer shall be provided with an integral steam generator, manufactured from B.S. 151 Grade 430A carbon steel plate (for which materials Compliance Certificate shall be provided). A certificate issued by the inspection authority under whose supervision the pressure vessel is manufactured shall be provided.

b) The steam generator vessel shall be connected to the sterilizer jacket via a globe type isolation valve. The steam generator shall be fitted with a correctly sized and rated safety valve and pressure gauge.

c) The steam generator shall be fitted with a steam separator.

d) At least one end of the steam generator shall be flanged, to which an inspection cover shall be bolted and sealed with a gasket of suitably rated material.

e) To monitor the electrical load per phase, an ammeter connected via current transformers and selector switch shall be provided. The normal working amps shall be marked in red on the ammeter faceplate.

f) Electric heating elements of the sheathed wire immersion; Incaloy type shall be fitted in a manner, which will facilitate removal, inspection and replacement. Wiring shall be continuously rated. The element kW rating shall be stamped on the manufacturer's plate.

g) A pressure switch shall control the steam pressure to a maximum of 240kPA gauge.

h) A 20mm Ø automatic blow down valve shall be provided. Blow down pipework shall be installed in such a way that there is no pressurisation of the water feed tank under blowdown conditions.

i) The automatic blow down shall be programmed in order that:

   i) The blow down time shall be adjustable from 5 to 60 minutes.
   ii) Blow down will not take place during a cycle.
   iii) Blow down frequency shall be adjustable from 1-7 days.
   iv) Blow down shall take place at full operating pressure.
   v) Elements and water feed shall be de-energised during blow down

j) One floatless type level switch shall control the operating water level. A second floatless type switch shall protect the elements against low water level conditions. A water level gauge glass shall be provided. The maximum and minimum water levels shall be indelibly marked in red on the water level gauge.

k) The water supply shall be connected to the steam generator via a valve and a non-return valve. Where the mains water supply pressure is less than 300 kPA g, a break/pressure water supply tank, with ball valve and overflow piped to drain and a centrifugal type water feed pump shall be incorporated.

l) The pump shall be protected against low water conditions.

m) **Note** - The steam generator shall be provided with (in addition to the manual blow down valve) a suitably rated, normally closed, TDS control, bleed valve of 6mm nominal bore.

n) The take off point for the TDS bleed shall be from a point above the elements and below the low water level.

o) Prior to the TDS bleed valve, a 15mm globe type isolating valve and strainer shall be provided.

p) The TDS bleed valve shall be programmed to open at the end of each cycle. It shall be possible to manually adjust the valve open time from 0 to 20 seconds.

q) The bleed valve shall be piped to drain.

2.18 FRAME AND BASE

The frame and base shall be of either:

i) Robust mild steel construction. The steelwork shall be de-burred, degreased and painted with:

- Primer Coat: Plascon Strathclyde PA 10.
- Undercoat: SABS 681 Type II Plascon Universal.
- Enamel Finishing Coat: SABS 630 Type Plascon Universal Enamel or other approved, or

ii) 304 ℓ Grade stainless steel.

iii) Support frames and bases shall be leveled so that there is a minimum of 10mm clearance between the frame/base and the finished floor level. Front facia shall be flush with the finished floor level.

2.19 LEVELING SCREWS

A minimum of four stainless steel levelling screws shall be provided together with stainless steel base pads of a minimum of 50mm diameter, 5mm thick.

2.20 LOADING EQUIPMENT

a) General Features: Shall be as per SANS 982-1990, Clause 5.8.1.

b) Shelves: Shall be as per SANS 982-1990, Clause 5.8.2 and shall be fabricated from grade 304 ℓ Stainless Steel round bar.

c) Loading Carriage and Transfer Trolley shall be as per SANS 982-1990, Clause 5.8.3, 5.8.3.1 and 5.8.3.2.

2.21 SIDE COVERS

a) When it is required that the sterilizer shall be installed in a free standing position (not recessed) easily removable side covers shall be provided.

b) Side covers shall be ventilated and be manufactured from mild steel 1.2mm thick which shall be, deburred degreased and coated with an epoxy powder coated finish or equal and approved.

2.22 FUTURE CONVERSION

a) Note: Direct steam autoclaves are to be constructed in such a way as to facilitate, with ease, the future incorporation of integral steam generators.

2.23 SERVICES

a) Where practicable all services i.e., steam, condensate, water and electrical supplies, shall be routed overhead and connected to the autoclave.

b) All services are to be colour coded.

2.24 TESTING

a) The supplier/installer shall supply all instrumentation and materials necessary for the installation, testing and validation of each autoclave in accordance with standard EN285 of 1996 as amended. (European Standard : Sterilization – Steam Sterilizers – Large Sterilizers)

2.25 DESCRIBE THE STERILIZING CYCLE STAGES, STATE PRESSURE, TEMPERATURE AND TIMES

STAGE	DESCRIPTION	Pressure	Temp.	Time

Note: Additional copies of this page may be made and submitted with the schedule of information if required.

PROVINCE OF KWAZULU-NATAL
DEPARTMENT OF HEALTH

KING EDWARD VIII HOSPITAL: OPERATING THEATRE AUTOCLAVE INSTALLATION

3. PARTICULAR SPECIFICATION

3.1 TECHNICAL SPECIFICATION

3.1.1 GENERAL

The Technical Specification (Part 4) shall be read in conjunction with all other sections of this Particular Specification and cognisance shall be taken of the clauses relevant to the Particular installation, whether any specific clauses are referred to or not.

3.2 GENERAL REQUIREMENTS

Bidders are to make special note of the following:

This particular specification must be read with, and shall form part of, Part 3 of this document (Project Specification).

In so far as the conditions contained herein are at variance with any obtained in the Technical Specifications, the contract shall be interpreted in terms of this Part 3 (Particular Specification).

The whole installation shall be in accordance with the Occupational Health and Safety Act 85/1993 and all regulations framed therein shall be carried out to the satisfaction of the Department of Health.

Competent workmen skilled in their trade shall carry out all work. Quality shall be of the best standard practice and all workmanship will be subject to the approval of the Department of Health.

The work shall at all times, for the duration of the contract, be carried out under the supervision of a skilled and competent representative of the Contractor, who will be able and authorized to receive and carry out instructions on behalf of the Contractor. A sufficient number of workmen shall be employed at all times to ensure satisfactory progress of the work.

All apparatus, component parts, fittings and materials employed in the execution of the Contract shall be new and unused and shall be the latest type or pattern of the particular manufacture employed. S.A.B.S. mark bearing items shall be used wherever possible.

Allow for any anti-vibration equipment required to ensure that the installation is completely acceptable to the Department of Health.

The complete installation shall be maintained for a period of twelve months after acceptance in writing by the Department of Health and shall allow for routine inspections not less frequently than two times a year.

The complete installation must be guaranteed against defective parts and workmanship for a period of twelve months after the date of issue of the Completion Certificate. This period shall run concurrently with the maintenance period.

Rates are to include for commissioning and testing of the complete installation and handing over in working order ready for use.

Bidders are advised to visit the site and acquaint themselves fully with the site conditions and nature and full extent of work involved prior to submitting their tender. Claims on the grounds of insufficient information in such respects or otherwise will not be entertained by the Administration.

The Administration reserves the right to make emergency repairs to keep the equipment in operation without voiding the Contractor's Guarantee, nor relieving the Contractor of his responsibility during the guarantee period when, after proper notice, the Contractor fails to attend to such emergency repairs. All costs incurred by the Administration under these circumstances will be for the account of the Contractor.

NOTE: All electrical equipment shall comply with NER Regulation of voltage.

3.3 SCOPE OF CONTRACT

Replace one existing autoclaves situated in the operating theatre at VARIOUS INSTITUTIONS.

Supply, deliver to site and install 400 Litre autoclaves/sterilizers in the theatre complex/CSSD to replace the above old units.

i) Disconnect, uplift and relocate the two existing CSSD autoclaves situated in the autoclave plant room and hand over to maintenance to the workshop or to an area identified by hospital maintenance personnel.

ii) Supply, deliver to site and install the new autoclave in the position vacated by the above old units.

iii) The existing front fascia board / cover shall be removed together with the existing autoclave as a new stainless steel front fascia/cover shall be allowed for and be, supplied fixed to the new autoclaves as standard, installed to close off the space between the autoclave and the wall opening.

iv) A stainless steel architrave shall be installed after the installation of the new autoclave to suit the altered/new stainless steel front cover.

v) The new autoclaves shall be connected to the existing services as required.

vi) Supply and install a Water Softening Plant where it is required.

New Sterilizer Installation.

3.3.1 Supply and install 0,4m³ sterilizer, rectangular, horizontal recessed model, high speed, high pressure, pulsing, single automatic sliding door jacketed type autoclave with three sterilizing cycles, as per the Technical Specification part 2 above, for:

i) Instrument packs and porous loads.
ii) Liquids.
iii) Rubber goods.

And with

a) Control system
b) Bowie and Dick Test cycle
c) Air leak test
d) Vacuum pump
e) Internal and external loading trollies
f) One of loading trolley per autoclave
g) Three sets of operating and maintenance manuals.

3.3.1.1 A new prefabricated architrave of 0,9mm brushed finished grade 304 ℓ stainless steel shall be supplied fitted to the sterilizer to suit the autoclave front and to cover the gap between autoclave and wall opening. The opening final dimensions shall be determined on site by the contractor prior to manufacture of the autoclave and the front cover.

3.3.1.2 Allow to connect to the existing electrical isolators. (Note: The existing autoclave isolators are fed from

separate DBs the one off essential power the other off non-essential power.)

3.3.1.3 Allow to connect to the existing water supply.

3.3.1.4 Allow for a water softener booster pump set complete with 25 litre sphere, check valves and pressure gauge to serve the two autoclaves.

3.3.1.5 Allow for 28mm Ø copper drain to discharge into the existing drain.

3.3.1.6 Allow for 15mm Ø copper piping from the safety valve to discharge steam at high level outside the plant room or alternately to tundish and drain.

3.3.1.7 Supply and fit a framed wiring diagram and fault finding guide in the plantroom and operating instructions adjacent to the autoclave fascia.

3.3.1.8 Installation testing, in accordance with EN285, 1996: Specification for Large Steam Sterilizers, to be carried out by the contractor. One test of each of the following is required.

i) Microbiological test (full load only)
ii) Thermometric test
iii) Air removal test (excluding air detection)
iv) Load dryness (full load only)

NOTE 1: All tests are to be documented and witnessed by a representative of the Department of Health.

NOTE 2: All test instrumentation, equipment and test devices are to be supplied by the contractor.

3.3.1.9 Supply spare door gaskets and cans of silicon spray.

3.3.1.10 Supply rolls of printer paper.

3.3.1.11 Supply boxes of printer ribbon.

3.3.1.12 Inspection and testing is required. Test certificate to be provided.

3.3.1.13 Staff training. CSSD and maintenance staff.

3.3.1.14 Commission and handover.

3.3.1.15 Six and twelve month service

3.3.1.16 Supply two sets of operating maintenance manuals.

3.4 THE SITE

The sites is.....

Bidders are to visit site to ensure successful installation of all the equipment specified.

3.5 PROGRAM OF WORKS

The contractor shall notify the institution seven (7) days prior to carrying out any site work. As the Centre is to remain in full operation for the duration of the works, the works are to be planned and executed so as to cause minimum inconvenience to staff.

3.6 TESTING AND COMMISSIONING

The units shall be tested and commissioned before handing over to the Administration.

3.7 MAINTENANCE MANUALS

Two sets of maintenance and operating manuals are required which shall include all circuit diagrams, spare parts lists, operating instructions, etc.

3.8 MAINTENANCE AND SERVICING

The unit is subject to an unrestricted twelve (12) month free maintenance and guarantee period, after the date of issue of the Completion Certificate. This is to cover all aspects of the equipment and associated wiring, piping, controls etc.

During the twelve (12) month maintenance and servicing period any defects shall be made good and all plant and equipment maintained in perfect operating condition.

SCHEDULE OF PRICES

PREAMBLE TO THE SCHEDULE OF PRICES

1. All prices shall be quoted in the currency of the Republic of South Africa and will be fixed. Only where exchange rates have been stated in the quotation document, as at two weeks (14 days) prior to closing date of this quotation, will such exchange rate fluctuation be taken into account in the variation of the cost of the imported items/equipment.

2. The Tenderer shall enter a price against each item in the schedule of prices. If the Tenderer fails to enter a price against any item in the schedule of prices the relevant cost of such item shall be regarded as being covered by other prices in the schedule of prices.

3. **The prices quoted against each item of these schedules shall cover the full inclusive cost of everything required for the execution of the work under the item plus an apportionment of any cost involved in meeting the obligations and liabilities imposed by the conditions of contract and in complying with the specifications.**

4. The prices quoted for the supply of plant and equipment shall include for all handling, loading, transporting and off-loading required for the delivery of the plant and equipment to the site, including in the case of off-site storage for double handling at the store.

5. The prices quoted for erection and installation shall include for all handling, loading, transporting and off-loading, to take plant and equipment to place on site where required, erection, installation, painting, commissioning, operating, testing, adjusting, handing over in proper working order and guarantee for a period of 12 months, all as specified.

6. The tendered rates and amounts must exclude Value Added Tax (VAT) but must include all levies, other taxes and duties on items to which they apply. Separate provision has been made in the Summary of Schedule of Prices for the addition of VAT.

7. Amounts allowed for contingencies will be spent in part or as a whole at the sole discretion of the Department of Health's "Representative".

8. The Schedule of Prices shall be completed and signed in **black ink.** Corrections must be done by deleting, re-writing and initialing next to the amendment.

9. Electrical and Mechanical work is not measured according to the Standard Procedures of Building Work.

10. The scope of work carried out will be re-measured at completion and the final cost of the works will be adjusted accordingly.

EQUIPMENT AND MATERIAL

1. MECHANICAL SCHEDULE OF RATES

ITEM	DESCRIPTION	QTY	UNIT COST	TOTAL COST (Excluding VAT)		
				BOUGHT OUT	PRO-PRIETARY	SUB CONTRACT
	Submit Occupational Health and Safety Plan before any construction work commences. Fulfill all safety requirements ,safety audits, inspections etc for the full duration of the contract in terms of the Health and Safety Specification	1	No			
	Disconnect, uplift and remove from the existing plant room the faulty 0.396m3 autoclave together with stainless steel panel & architrave and steam generator as specified.	1	No			
	Supply, deliver to site and install 'a new autoclave of 0.4 m³ min. capacity, with integral steam generator including all control and safety valves, pipe work, complete as specified.	1	No			
	Allow for 0,9mm thick brushed finished grade 304 stainless steel front panel as specified.	1	No			
	Allow for a stainless steel or aluminium architrave as required to enclose the gap between autoclave and side panels as specified.	1	No			
	Allow for 15mm Ø copper pipe water supply to connect the autoclave to the existing supply feed including fittings and stop cock as required.	10	m			
	Allow for 22mm Ø copper pipe drain from the safety valve to discharge steam at high level outside the plant room onto the building roof. The drain pipe shall have a tail pipe, connected via a "T" piece to form a drain pocket, located to drain at the valve discharge connection point as specified.	10	m			
	Allow for 28mm Ø copper drain to discharge into the existing gulley/ system or as may be required and as specified	10	m			
	Internal loading carriage with external transfer trolley as specified.	1	No			
	Allow for spare door gaskets	3	No			
	Allow for silicon spray can	3	No			
	Supply spare printer paper roll as specified	3	No			
	Supply spare boxes of printer ribbon as specified	2	No			
	Allow for Installation testing – EN 285 as specified	1	No			
	Allow for Inspection & testing per Reg 13.1(a)	1	Item			
	Allow for staff training i. e. CSSD & Maintenance Staff.	1	Item			
	Allow for maintenance and guarantee period of 12 months	1	No			
	Allow for a water softener, with booster pump, of the electronic control type with check valves, pressure gauge and connected copper pipes	1	No			
	TOTAL SUMMARY A1 (CARRIED FORWARD TO SUMMARY A1 + A2)					

2. ELECTRICAL SCHEDULE OF RATES

ITEM	DESCRIPTION	QTY	UNIT COST	TOTAL COST (Excluding VAT)		
				BOUGHT OUT	PRO-PRIETARY	SUB CONTRACT
	PROPRIETARY ARTICLES: All equipment and material used in this contract is to be that which is specified or other approved by the Department.					
	LOW VOLTAGE CABLING, TERMINATIONS AND LAYING LOW VOLTAGE CABLES Supplying, laying cables and/or fixing of Multicore cables including terminations All cables shall be of the PVC ECC SWA type. Lengths given shall be as measured lengths of cable run from terminals to terminals and rates quoted shall allow for off cuts and wastage.					
	CABLE TERMINATIONS Cable terminations shall include the supply and fitting of a cable gland, WT shroud, making off the cable and fitting the gland to a board or gland plate, including final connections of cable tails into terminals. The earth strands shall be taken through the gland for fixing to the earth bar or stud. The gland will not be accepted as an earth connection. All glands shall be "Pratley" or other approved					
	Disconnection of power to existing autoclave.	1	No			
	16mm² x 4 core + ECC cable for power connection to new autoclave as specified	20	m			
	80 amp 6ka rating curve 2 MCB to replace existing in DB situated in adjacent passage as specified	1	No			
	Allow to replace existing autoclave isolator with 80amp TP isolator of 6KA rating adjacent to the autoclave in autoclave plant room as specified.	1	No			
	Allow for wiring diagrams	1	Item			
	Allow to fit over/under voltage monitor, incorporating phase failure and phase rotation (such as Electro V3EN or other approved) as specified	1	No			
	Compliance Certificate as specified	1	No			
	Compliance Certificate (Softening Plant)	1	No			
	TOTAL SUMMARY A2 (CARRIED FORWARD TO SUMMARY A1 + A2)					

SCHEDULE OF PRICES

SUMMARY A1 + A2

EQUIPMENT AND MATERIAL

ITEM NO	PAGE NO	DESCRIPTION	BOUGHT OUT	PROPRIETARY	SUB-CONTRACT
Insert Item numbers here	Insert page no here	Insert Heading of Schedule of Prices here	R	R	R
		TOTAL SUMMARY A1 - MECHANICAL SCHEDULE OF RATES	R	R	R
		TOTAL SUMMARY A2 - ELECTRICAL SCHEDULE OF RATES	R	R	R
SUB TOTAL			R	R	R
ADD MARK-UP					
BOUGHT OUT EQUIPMENT					
.....%(From R0.00- R 1 199 999.99) (Maximum 20%)			R		
.....%(From R 1 200 000.00-R 2 000 000.00) (Maximum 15%)			R		
			R		
NO MARK-UP ON PROPRIETARY EQUIPMENT				R 0.00	
ADD MARK-UP FOR SUB-CONTRACT WORK .....%(Maximum 15 %)					R
SUB TOTALS			R	R	R

TOTAL

(Bought out + Proprietary + Sub Contract) R.....

(A1 + A2) GRAND TOTAL R.....

(To be carried forward to Collection Summary Form)

1. KING EDWAD VIII HOSPITAL - SCHEDULES OF PRICES

SUMMARY A3 (Supply, install and commission Autoclave and Water Softener)

LABOUR HOURS

ITEM NO	PAGE NO	DESCRIPTION	SKILLED LABOUR	APPRENTICE LABOUR	SEMI SKILLED LABOUR	UNSKILLED LABOUR
Insert Item numbers here	**Insert page no here**	**Insert Heading of Schedule of Prices here**	**HOURS**	**HOURS**	**HOURS**	**HOURS**
		Supply, install and commission autoclave. – King Edward VIII Hospital				
SUB TOTAL						

(To be carried forward to Summary B 3 (Labour, Subsistence, Travel and Transport)

3. KING EDWAD VIII - SCHEDULE OF PRICES (Supply, install and commission Autoclave and Water Softener)

SUMMARY B3

LABOUR, SUBSISTENCE, TRAVEL AND TRANSPORT

7.8.1 LABOUR	TOTAL HOURS	RATE/HR	AMOUNT
a) Artisans	.....	R	.....
b) Apprentices	.....	R ...../hr	.....
1st year	.....	R...../hr	.....
2nd year	.....	R...../hr	.....
3rd year	.....	R...../hr	.....
4th year	.....	R...../hr	.....
c) Semi-skilled	.....	R ..... /hr	.....
d) Unskilled	.....	R ...../hr	
7.8.2 SUBSISTENCE	**TOTAL DAYS**	**RATE**	
a) Artisans/Apprentices	.....	R /day	.....
b) Semi-skilled	.....	R /day	
c) Unskilled	.....	R /day	.....
7.8.3 TRAVEL	**TOTAL KM**	**RATE**	
7.8.3.1 From contractor's premises to site			
a) ..... trips (skilled) @..... km per trip	.....	R...../km	.....
b) ..... trips (semi- skilled) @..... km per trip	.....	R...../km	.....
7.8.3.2 From accommodation to site			
a) ..... (skilled) @..... km per trip	.....	R...../km	.....
b) ..... trips (semi skilled) @ ..... km per trip	.....	R...../km	
7.8.4 TRANSPORT	**TOTAL KM**	**RATE**	
Haulage to site .....trips			
@ ..... km per trip	2.5 tone	R...../km	.....
@ ..... km per trip	3 tone	R...../km	.....
@ ..... km per trip	5 tone	R...../km	.....
@ ..... km per trip	7 tone	R...../km	.....
@ .....km per trip	10 tone	R...../km	.....
b) Cranage to and on site @ sub contract rate	.....	X.....	.....

SUB TOTAL **R** _____

B3 - GRAND TOTAL **TOTAL** **R**
Labour, subsistence, travel and transport ==========

(To Be Carried forward to Collection Summary Page)

COLLECTION SUMMARY

INSTITUTION:

KING EDWARD VIII HOSPITAL

PROJECT:

CSSD AUTOCLAVE INSTALLATION

NOTE:

THIS COLLECTION SUMMARY MUST BE COMPLETED IN FULL BY THE CONTRACTOR AND RETURNED TOGETHER WITH THE TENDER FORM.

Collection Summary	(A1 + A2) - GRAND TOTAL	R		
Collection Summary	(B3) - GRAND TOTAL	R		
SUB-TOTAL "A"		R		
ADD Provision for Value Added Tax Allow 15% of SUB-TOTAL "A"		R		
TOTAL (CONTRACT OFFER): CARRIED TO TENDER FORM		**R**		

400L Autoclave supply & Installation - Technical/Functionality Criteria

The Bidder needs to score a minimum of 70 points for the functionality and quality criteria to be considered responsive for this Bid. This form must be returned with the other returnable documents.

TENDER EVALUATION CRITERIA AND SCORING

The weighting for Quality and functionality out of 100 sub-points is as follows:

	Evaluation Criteria	Deliverables	Points		Sub-Points		Sub-Criteria	Sub-Points Scoring				
									Value	Scope	Duration	Year
1.	Competency and experience of the tenderer on supply and installation of 1 x 400l autoclave,	Tenderers to demonstrate their competency and experience by submitting proof of at least 3 similar sized projects completed in the past 5 years, where they specifically supplied and installed 1 x 400L autoclave. Submission must include at least the projects award letters (or order number if within DOH KZN) and completion certificates to determine scope, duration and value.	40	Points	40	Sub-points	Schedule of experience (at least 3) on projects of similar scope, value and duration, specifically on the supply and installation of 1 x 400l autoclave, 40 points = proof of 3 (or more) supply and installation of 1 x 400L autoclave in 8 weeks within past 5 years, 30 points = proof of 2 supply and installation of 1 x 400l autoclave in 8 weeks within past 5 years, 20 points = proof of 1 supply and installation of 1 x 400L autoclave 8 weeks within past 5 years, any other submission not meeting the above gets 0 points	40	≥	≥	≤	< 5 years
								30	≥	≥	≤	< 5 years
								20	≥	≥	≤	< 6 years
								0	<	<	>	< 5 years
								0	Any	Any	Any	>
2.	Tenderer's Project Management Structure, Organogram and experience of technical resources proposed for this project	A tenderer must submit a detailed project organogram that shows roles and responsibilities of each proposed technical team member (mechanical and electrical artisan and coded welder), which is backed up by their curriculum vitae with traceable reference that detail technical qualifications and demonstrate extensive experience (min 3 years exp.) on manufacturing and installation of autoclaves.	60	Points	10	Sub-points	Submission of a detailed project organogram that shows roles and responsibilities of each technical team member that will be allocated to this project.	10	Submission of a detailed project organogram that shows roles and responsibilities of each technical team member that will be allocated to this project.			
								0	no or irrelevant submission, does not meet requirement			
					20	Sub points	Submission of a curriculum vitae that detail technical qualifications for each technical resource as appearing on the organogram above. It is acknowledged that general workers (semi-skilled and unskilled) may not have formal qualification(s).	20	3 out of 3 of Technical resources on the project organogram has formal qualification(s), excluding general workers (semi-skilled and unskilled).			
								10	2 out of 3 of Technical resources on the project organogram has formal qualification(s), excluding general workers (semi-skilled and unskilled).			
								0	1 and 0 out of 3 of Technical resources on the project organogram has formal qualification(s), excluding general workers (semi-skilled and unskilled).			
					30	Sub points	Submission of a curriculum vitae that demonstrate extensive experience (min 3 years exp.) on Autoclave Fabrication and Installation for each technical resource as appearing on the organogram above.	10	Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Mechanical Fitter(s)/Artisan(s).			
								0	Non-Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Mechanical Fitter(s)/Artisan(s).			
								10	Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Electrician(s).			
								0	Non-Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Electrician(s).			
								10	Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Coded Welder(s).			
								0	Non Submission of Proof of minimum 3 years experience in Autoclave Fabrication and Installation for the Coded Welder(s).			

TENDER EVALUATION CRITERIA AND SCORING PRICE AND BBBEE

Evaluation Criteria	Deliverables	Points	
Price	The lowest responsive and responsible priced offer shall be	80	Points
Broad Based Black Economic Empowerment (BBBEE)	The points allocated to each tenderer for Broad Based Black Economic Empowerment shall be based on the Broad Based Black Economic Empowerment Scorecard. In this regard,	20	Points
	- Level 1 Contributor	20	Points
	- Level 2 Contributor	18	Points
	- Level 3 Contributor	16	Points
	- Level 4 Contributor	12	Points
	- Level 5 Contributor	8	Points
	- Level 6 Contributor	6	Points
	- Level 7 Contributor	4	Points
	- Level 8 Contributor	2	Points
	- Non-Compliant Contributor	0	Points