

DETAILED TECHNICAL SPECIFICATION
for the
FIRE DETECTION / ALARM INSTALLATION
TO
THULASIZWE CLINIC

1. SITE PROJECT DESCRIPTION

The Clinic is located in Umkhanyakude Health District, Big Five Hlabisa Municipality. It is within a rural location.

2. FIRE DETECTION INSTALLATION

This contract is for the full detailed design, supply, delivery, installation, commissioning and guarantee of a complete fire detection/alarm installation, as described further in this specification, for the new Thulasizwe Clinic.

All wiring associated with the installation shall be PH60 grade fire alarm cable.

Preparation of shop drawings and wiring diagrams and submission of descriptive material sufficient to clearly describe the nature, installation details and operating features of all equipment and materials supplied under this contract.

Timely provision of any builders' work requirements associated with this installation.

Preparation of "as-built" drawings.

Preparation and supply of operating and maintenance instructions.

Adequate training of owner's operating personnel.

The Sub-Contractor shall submit at tender closing date a descriptive block diagram of the entire system, showing required equipment and the various interfaces and links.

The Sub-Contractor shall include in their price an allowance for normal offsets around other services as well as offsets around structure, and all drawing and re-drawing of systems for a complete installation.

The Sub-Contractor is advised that this is a contract in which the scope of work is clearly defined. No variations to the contract shall be permitted. Only additional items as measured in the pricing schedule will be allowed if required due to Client changes to the layouts. The Tender price shall include everything required for a complete installation.

The Sub-Contractor shall make himself acquainted with the Main Contractor's programme and commit the requisite teams to the contract to ensure the programme is met.

3. **GENERAL DESCRIPTION**

This document must be read in conjunction with the following drawings;

- D0741-FD-01 Rev D Ground Floor Fire Detection Plan
- D0741-FD-02 Rev D Ground Floor Fire Detection Roof Plan

The system shall consist of a 2 Loop Addressable Fire Alarm panel which shall be situated on the wall in the security control room as indicated on the drawing and will include all wiring and wireways. Final location of the panel shall be at the architect's discretion.

The Fire Detection/alarm system will be required to interface with the at least the following third-party systems:

- Magnetic detente on security door.
- The FM200 Automatic Suppression Systems in the Record Room and Server Room.

4. **DETAILED DESCRIPTION**

The required system shall be an M/L1 Fire Detection and Alarm System for protection of the Clinic as described in SANS 10139 and SANS 322 where applicable.

The works associated with the Fire Detection Contract, shall include but be not restricted to the following for a complete installation:

Provide access equipment necessary for the installation;

Install a 2 loop addressable fire control panel complete with standby batteries and network card and a GMS/GPRS module for sms communication;

Install a Fire Detection and Alarm System as indicated on the drawings. Ceiling mounted detectors shall be optical type detectors and fixed temperature heat detectors as required and shall include all mounting bases. The roof mounted detectors shall be optical detectors with ceiling mounted remote indicators. All detectors and ancillary equipment shall be fully addressable. Device addresses shall be labelled on all the devices;

The fire detection system shall be a Category ML1 fire detection/alarm system that shall be designed and installed in compliance with and to SANS 10139 and SANS 322 where applicable, as amended;

Install strobe sounder beacons with volume control and mounting bases as indicated on the drawings. A sample to be acquired for approval by Client/Engineer.

Manual alarm call points, (red break glass boxes), as indicated shall be installed. Positions shown indicate the required locations of the MCP's. .

MCP's shall be chased into the walls by the Sub-Contractor. Allow for all encasements. All MCP's shall be resettable having a protective plastic cover;

NB! Location of devices on the drawings is for pricing purposes only. Final locations shall be coordinated by the Sub-Contractor with lighting and diffusers and shall be determined on site.

The Sub-Contractor shall coordinate with the electrician regarding the required location of the 220v 10amp power supply on the wall, for the electrician to install his lockable isolator.

5. CONDUITS AND WIREWAYS

The Sub-Contractor shall inspect the site and make himself familiar with prevailing conditions. No additional payment will be made for unknown conditions. Where PVC conduit or trunking is used, special attention shall be given to the support method of the conduit so as to prevent the collapse of the cable network under fire conditions: i.e. said supports shall be non- combustible (for example steel). The distance between the conduit supports shall not exceed 500 mm cc.

All conduits/trunking on walls will be chased into the wall by the sub-contractor.

All wiring and equipment required to make complete and operational the fire detection and alarm system as described herein shall form part of this contract.

This shall include wiring from the 220V ac 10 amp power point provided by the electrical contractor.

6. DRAWINGS

The Sub-Contractor shall submit, for approval in principle, all the necessary drawings prior to starting work.

Any work started (off site or on site) prior to receiving the Engineer's approval of drawings shall be at the sub-contractor's own risk.

The Engineer may require from the Sub-Contractor further detailed drawings and/or calculations which clarify features not adequately shown on the layout drawings.

The request for additional details shall not be construed as extending the scope of this contract or altering the programme.

The Sub-Contractor shall submit electronic drawings and prints of each drawing for approval.

The drawings will be returned to the contractor, within two weeks of their receipt, one copy of each drawing marked "Approved in Principle" or marked with any changes which are necessary.

The Sub-Contractor shall modify the details and drawings as required. The nature and date of each modification and a distinguishing symbol shall be added and the drawings shall be submitted again for approval.

Alterations to drawings by the Engineer are not intended to change the scope of work unless explicitly stated as doing so. Should any alterations, in the opinion of the Sub-Contractor, change the scope of work the Sub-Contractor shall notify the Engineer immediately upon receipt of the altered drawings before any further drawing work or fabrication is carried out.

Claims for a change of scope made after performance of the work constituting the claimed change of scope of work will not be considered.

7. **OPERATOR TRAINING**

On completion of all tests, to the satisfaction of the Engineer, the Sub-Contractor shall continue to be responsible for the complete operation and maintenance of the installation for a period of three weeks during which time instructions shall be given to the Employer's Staff of the proper operation and maintenance of the installation.

The operation and maintenance of the system for the duration of the instruction period shall not in any way relieve the Contractor of his responsibility under the terms of the contract.

8. **SERVICE CONDITIONS**

All equipment offered shall be suitable for continuous operation under the following site conditions:

Ambient Temperature	40°C maximum, 0°C minimum
Humidity	5% to 95% RH (non condensing)
Altitude	Approximately 200m above sea level
Lightning	Whilst no specialised surge suppression will be provided, tenderers are advised to take cognisance of this and make the necessary allowance for protecting equipment against lightning or power surges)
Nominal LV Supply	400/231V (no load) 4 wire 3-phase system with earthed neutral
Frequency	50 Hz

The Sub-Contractor shall be responsible for any discrepancies, errors or omissions in the drawings and other particulars supplied by him whether such drawings or particulars have been approved by the Engineer or not, provided that such discrepancies, errors or omissions are not due to inaccurate information or particulars furnished in writing to the contractor.

Three copies of the final manufacturing and installation drawings shall be issued to the Engineer by the Contractor within ten days of receipt of approval in principle. Copies shall be in DWG and print format. Further copies shall be provided as may be required by the Engineer either before or after final approval.

The Contractor shall provide, at his own expense, all copies of drawings required by him in the execution of the work and shall also, at his own expense, supply to the Engineer such drawings and copies thereof as are provided for in the specification.

9. **RECORD DRAWINGS AND DOCUMENTATION**

On completion of the installation, but before final handover, the Sub-Contractor shall provide a CD plus one print of each of the contract drawings showing the installation as fixed :

- (i) Complete installation layout.
- (ii) Detailed drawings of all items of plant.

- (iii) Electrical layouts and wiring diagrams.
- (iv) Details of any other items requested by the Client.

The drawings shall be sufficient in detail to enable the Employer's Staff to maintain, dismantle, reassemble and adjust any part of the works.

The layouts shall show the location of all manual and automatic equipment, controls, control panels, outlets, etc.

10. MAINTENANCE (DURING GUARANTEE PERIOD)

The Contractor shall maintain the entire installation as described in this specification for a period of one year from the date of final handover.

The maintenance visits shall be carried out at regular intervals, as necessary.

The maintenance shall cover all items of plant and equipment and shall include replacement of all expendable items.

In addition to the quarterly maintenance visits, the Sub-Contractor shall carry out all necessary visits due to failure of any item of the system. The Sub-Contractor shall attend to all complaints by the employer at no additional cost.

The Sub-Contractor shall report to the employer's nominated representative both on arriving and leaving the site. The Sub-Contractor shall provide the employer and Client with a service report for each visit whether scheduled or breakdown.

At each maintenance visit the Sub-Contractor shall check the function of each item and shall ensure that the equipment is performing to specification. All automatic controls and safety devices shall be checked.

All electrical control gear, bulbs, etc shall be checked and adjusted or replaced as necessary.

The equipment shall be cleaned where necessary at each scheduled visit.

The Sub-Contractor shall notify the Client prior to the final service so that the Client may accompany the sub-contractor.

The Client may at his discretion allow the maintenance period on any item of equipment or section of the installation start at a date prior to final handover if it is put into operation for beneficial use of the employer prior to final handover, this will not be permitted in cases where final handover is delayed due to the Sub-Contractor not carrying out remedial work in good time.

The tender price shall include a full complement of recommended spares for the total maintenance period as well as the following period of twelve months. Tenderers shall detail the allowance for recommended spares as a detailed breakdown of the total allowance.

11. GUARANTEE

The Sub-Contractor shall guarantee the entire installation as described in this specification for a period of twelve months from the date of final handover.

The guarantee shall provide for all parts, spares and equipment that become defective during the guarantee period and these shall be replaced free of charge. The guarantee shall cover all costs including material, labour, overheads, travelling, accommodation, scaffolding etc.

The complete installation shall be guaranteed against defects whether patent or latent as well as against faulty materials and workmanship.

The guarantee shall cover all materials, plant and equipment whether or not it is covered by a manufacturer's guarantee. The Sub-Contractor shall cede to the employer the remainder of any equipment guarantee which he has received from his Suppliers and which extends beyond the three year period. It shall be the responsibility of the Contractor to ensure that the guarantee is transferable.

The Client may at his discretion allow the guarantee period on any item of equipment or section of the installation start at a date prior to final handover if it is put into operation for beneficial use of the employer prior to final handover, this will not be permitted in cases where final handover is delayed due to the Contractor not carrying out remedial work in good time.

12. OPERATING AND MAINTENANCE MANUALS

The Sub-Contractor shall provide three copies of the operating and maintenance manuals.

The Sub-Contractor shall submit for approval to the Client, four weeks before completion of the installation, two copies of the maintenance and operating manuals for the system supplied.

The Client will return these to the Contractor within ten working days of their receipt by him, marked with all changes which are necessary.

The Sub-Contractor shall modify the manuals as required by the Client and submit to the Client within ten working days, one revised copy of the manual. On completion of the installation, but before the plant is handed over to the Employer, the Sub-Contractor shall provide the final operating and maintenance manuals for the system supplied in CD format.

The manuals shall be properly indexed to facilitate easy reference.

The manuals shall include:

- (i) A list of recommended servicing tools and specialist equipment.
- (ii) A list of spares with price breakdown to be supplied by the Contractor to cover the period of warranty.
- (iii) A priced list of recommended spares necessary for a period of two years of operation.
- (iv) Exploded drawings or detailed spares list from which every item of every piece of equipment can be positively identified for ordering replacements.
- (v) A list indicating the name and address of the local agent for each item of equipment.
- (vi) A list indicating the name and address of the manufacturer of each item of equipment.

- (vii) A copy of all test certificates obtained with the equipment.
- (viii) A list of recommended lubricants (if applicable).
- (ix) A preventative maintenance programme for all equipment.
- (x) Operating instructions for each item of equipment.
- (xi) Performance data and/or characteristic curves.
- (xii) Commissioning data.
- (xiii) Record drawings.
- (xiv) List of recommended spares to be purchased immediately. Detailed reference to every supplier of such spares.
- (xv) List of recommended tools and instruments to be purchased immediately for servicing, repair and testing purposes.
- (xvi) Proposals for possible training to the staff members (operational and technical).