

SCOPE OF WORK AND TECHNICAL SPECIFICATION

FOR SERVICING/REPAIR OF FIRE DETECTION AND GAS SUPPRESSION SYSTEMS

AT

UNIVERSITY OF THE WITWATERSRAND

JOHANNESBURG

FIRE DETECTION AND SUPPRESSION SYSTEMS

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1. BACKGROUND AND PURPOSE

The University of the Witwatersrand has many buildings that have fire detection and gas suppression systems. These were installed at different times. They consist of one with Conventional fire panels, some with ZP2 fire panels and ones with ZP3 fire panels. The fire detection systems help to detect fire and when the alarms sound students and personnel can then evacuate whilst the fire is being extinguished. Gas suppression systems will be activated to protect the equipment which they are supposed to preserve.

It is essential that these systems are maintained regularly to extend their lifespan. Most of the University buildings are old making them easily prone to fire. The university has therefore increased the service frequency of these systems from biannual to quarterly. Old conventional fire panels are also being phased out and some will be replaced during this contract. The University also wants to link all fire panels to a Central Control room.

For this reason, it is important for the University to procure the services of accredited and experienced Service Provider to perform preventative and corrective maintenance on fire detection and gas suppression systems.

2. SCOPE OF WORK

2.1 FIRE DETECTION

This scope of work covers the general repair and maintenance of fire detection system installations, which include the following:

- (a) Fire panel
- (b) Smoke detectors
- (c) Heat detectors
- (d) Sounders/strobe lights
- (e) Call points

2.2 FIRE SUPPRESSION

This scope of work covers the maintenance of gas suppression system installations, which include the following:

- a) Control panel
- b) Smoke detectors
- c) Sounders/Bell
- d) Gas cylinders

2.3 COMMAND CENTRE INTERFACE

Fire Detection and Suppression System shall include the monitoring system or central hub for managing a fire alarm system within the buildings and interface with central command centre (Solomon Mahlangu House CPS Control Room located at basement 3 and second floor). The

monitoring system shall play a critical role in fire safety by promptly detecting potential fire emergencies, alerting occupants and responders, and assisting in managing the response to such situations. Its functionalities ensure efficient operation, early detection, and effective communication during fire events. Its major functionalities include:

a. Information display

The display information about the system's status on its interface. This information might include the zones or building floor where alarms have been triggered, trouble conditions, and system health. The display allows for quick assessment of the situation by building occupants and responders

b. Event Logging

The system shall record system events, including alarms, faults, and system tests. This event log is crucial for post-incident analysis, compliance reporting, and troubleshooting.

c. Fault Detection and Reporting

Apart from fire detection, the system shall monitor the health of the fire alarm system itself. It shall identify faults, malfunctions, or wiring issues in the system and reports these conditions to building maintenance personnel for prompt resolution

d. Short Message Service (Notification)

The system should be able to send SMS to selected numbers. The SMSs should be received in real time. The Service Provider will be responsible for managing this system including replenishing data and sim cards. The Service Provider will produce monthly reports on this system.

The university has an existing fire detection control system that is linked to a control room located in Solomon Mahlangu House Basement 3. The bidders shall make all reasonable efforts to assess existing system and determine what is required to maintain it or make necessary upgrades to ensure that it operates efficiently. The cost of improvements or upgrades will be included in the BoQ as specified. The university will give bidders access to the existing system to allow them to assess the functionality of the current systems.

3. DEFINITIONS

Call Out	A demand on the Service Provider to act because of equipment or related failure, requiring the Service Provider to visit the site outside of scheduled preventative maintenance.
Client	Customer who receives services which is the University of the Witwatersrand.

Down time	The period the equipment is not in operation due to equipment failure, breakdowns, unplanned repairs and periodic re-commissioning/re-adjusting of the equipment systems. This includes the response and repair time.
Emergency	Refers to any equipment part, system failure, or malfunction that results in Downtime and impacts on the University's activities or is life threatening.
	Service Provider An organization or company that provides services of Fire Detection and Gas Suppression to the University.
Wits	University of the Witwatersrand

4. ABBREVIATIONS

Term / Acronym	Definition
AC	Alternating Current
BoQ	Bill of Quantities
BS	British Specification
CPS	Campus Protection Services
HVAC	Heating Ventilation and Air Conditioning
LED	Light Emitting Diode
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
SANS	South African National Standards
SAQCC	South African Qualifications Committee
SMS	Short Message Services

5. STANDARD SPECIFICATIONS

5.1 SANS SPECIFICATION

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall deemed to form part thereof.

SANS and other specifications and codes

SANS 10139:	Fire detection and alarm systems - System design, installation and servicing.
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SANS 50054-1:	Components of automatic fire detection systems Part 1: Introduction
SANS 50054-2:	Fire detection and alarm systems Part 2: Control and indicating equipment
SANS 50054-3:	Fire detection and alarm systems Part 3: Fire alarm devices Sounders
SANS 50054-4:	Fire detection and alarm systems Part 4: Power supply equipment
SANS 50054-5:	Fire detection and alarm systems Part 5: Heat detectors - Point detectors
SANS 50054-7:	Fire detection and alarm systems Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization
SANS 50054-11:	Fire detection and alarm systems Part 11: Manual call points
SANS 10142-1:	The Wiring of Premises Part 1: Low Voltage Installations.
SANS 141 1-5:	Materials of insulated electric cables and flexible cords Part 5: Halogen-free, flame-retardant materials
SANS 60331-21:	Tests for electric cables under fire conditions - Circuit integrity Part 21
SANS 1507:	Polyvinyl Chloride (PVC) Insulated Electric Cables and Flexible Cords.
SANS 950:	Non-metallic Conduit and Fittings (for Electrical Wiring)
SANS 1200LC:	Standardized specification for civil engineering construction Section LC: Cable ducts
SANS 14520:	Gaseous fire-extinguishing systems – Physical properties and system design.
SANS 369-1:	Code of practice for the operation of fire protection measures – Part 1: Electrical actuation of gaseous total flooding extinguishing systems
SANS 369-2:	Code of practice for the operation of fire protection measures – Part 2: Mechanical actuation of gaseous total flooding and local application extinguishing systems.
SANS 306-4:	Fire Extinguishing Installations and Equipment on Premises: Part 4 Specifications for Carbon Dioxide Systems”

SANS 10139:	Fire detection and alarm systems - System design, installation and servicing.
SANS 50054-1:	Components of automatic fire detection systems Part 1: Introduction
SANS 50054-2:	Fire detection and alarm systems Part 2: Control and indicating equipment
SANS 50054-3:	Fire detection and alarm systems Part 3: Fire alarm devices Sounders
SANS 50054-4:	Fire detection and alarm systems Part 4: Power supply equipment
SANS 50054-5:	Fire detection and alarm systems Part 5: Heat detectors - Point detectors
SANS 50054-7:	Fire detection and alarm systems Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization
SANS 10142-1:	The Wiring of Premises Part 1: Low Voltage Installations.
SANS 60331-21:	Tests for electric cables under fire conditions - Circuit integrity Part 21

5.2 OHS, MUNICIPAL AND MANUFACTURERS' STANDARDS

5.2.1 Occupational Health and Safety Act of 1993

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) shall be adhered to.

5.2.2 Manufacturers' specifications, codes of practice and installation instructions

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

5.2.3 Municipal regulations, laws and by-laws

All municipal regulations laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

6. CONTRACTUAL MATTERS

6.1 Contract Duration

The contract duration will be for 5 years.

6.2 Maintenance Reporting

The Service Provider shall submit two types of documents to the University on an ongoing basis, namely:

- A service log, after every service or inspection.
- A monthly report for all the installations including for the Command Centre interfacing.
- Quarterly reports

The service logs must highlight:

- Date and time of service.
- The equipment model and serial number being serviced.
- The maintenance tasks performed such as inspections, repairs, or replacements, etc. This will include readings, test results and checklists.
- Issues that were encountered during the service and the actions taken to resolve them.
- Recommendations for future maintenance.
- Materials used, including quantity and cost.
- Record of the personnel involved in the maintenance activities.
- Faults found and their priority.

The service log must be submitted to the University, and the subsequent maintenance activities must factor in previous outcomes where required.

Monthly reports will be required by the University which document all maintenance activities and incidents for that period. The reports are to be succinct and compiled with care. The reports referred to here are separate to the service logs but can be deemed to communicate a summary of events for the month.

6.3 House Keeping

All rubbish and waste arising from the work must be removed and the site and buildings left in a clean and tidy condition. Any waste as a result of the work done by the Service Provider will be cleaned by the Service Provider at no cost to the University.

As part of this submission the bidder is to provide an environmental management plan, that addresses aspects such as but not limited to: electronic waste disposal, gas leaks, etc.

6.4 Response Times

The required response time for Call Outs and other events is as follows:

- Priority 1 (Emergencies) – within 1 hour. The requirement is that the Service Provider is on site within 1 of an emergency condition to provide support. This would typically entail a scenario where a system is not available, or a condition which is life threatening.
- Priority 2 (Urgent) – within 3 hours. This condition would typically be associated with a situation where a fire detection signals a particular alarm condition.
- Priority 3 (General) – within 6 hours.

Any work / event requiring extended repair time shall be discussed and agreed between the University and the Service Provider.

6.5 Working Hours

The Service Provider shall be available 24 hrs a day, 7 days a week including holidays. All planned work shall be carried out during normal working hours (7:00 to 17:00) on days and times agreed with the client.

The University shall issue the Service Provider with the Academic Calendar for each year. This document shall contain key dates that may limit the nature of the work that may take place.

6.6 Payment

The University does not allow upfront payments. All payments will be made within 30 (thirty) days of submitting an invoice. However, where an EME as per the B-BBEE Codes has been appointed as a successful service provider, shorter payments may be considered as part of supplier development, subject to prior written approval by the University.

The rates indicated in the bill of quantities must be adhered to when preparing the invoice. Works involving ad hoc replacement of parts shall be in line with the tendered rates, have sufficient detail provided, and pre-approved by the University.

6.7 Sub-Contracting

The University prefers to contract directly with all service providers. However, for the integrity testing of rooms subcontracting is allowed provided, the service provider seeks prior approval from the University's authorized representative before proceeding.

6.8 Workmanship

Works with poor workmanship and unauthorized spares will not be accepted. Acceptance of the maintenance work shall be by means of review and approval of the submitted and fully completed service log by the University. The University may, from time to time, elect to witness any of the tests or inspections relating to the maintenance activities or request a retest to satisfy the University personnel of satisfactory functioning of the equipment.

The University reserves the right to withhold payments until the quality of the Services is acceptable. The Service Provider must have a quality management system such as ISO 9001:2015 or similar in place, and proof of such is to be provided with the bid. The quality management system must encompass, but not be limited to:

- Structured record keeping and retrieval.
- Record keeping for an established duration.
- The Issuance of reviewed service logs by authorised personnel.

In addition to the services being fit for purpose, they should also meet the manufacturer's performance standards.

6.9 Failure to Comply

The Services will be monitored, and penalties will be imposed. Penalties will be imposed as follows:

If the service provider fails to adhere to the provisions of the priority levels described herein, the University reserves the right to levy a penalty fee against the services provider (in line with university policy). Continuous violation of these provisions will result in the contract being terminated.

6.10 Health and Safety

The Service Provider must submit to the University's authorized representative and maintain a health and safety file every year for the duration of the contract.

The Service Provider must ensure that:

- A second person present during maintenance activities in the event of an accident, to ensure the emergency will be detected and help will take place.
- Its personnel wear personal protective clothing and safety equipment.
- Suitably trained personnel perform the Services.

6.11 Qualified Personnel

It is a requirement that personnel performing and overseeing works that the Service Provider is appointed for be suitably qualified and accredited in the specific trade. The required key personnel for this work are as follows:

The Service Provider must be SAQCC (Fire) registered for fire detection and gas suppression.

7 OPERATING AND MAINTENANCE MANUALS

The Service Provider shall be responsible for the updating of fire detection and suppression asset register.

All information shall be recorded and reproduced in electronic format, as well as three sets of hard copies to be supplied to the University's representative.

Over and above the afore mentioned, the Service Provider shall also be responsible for the compilation of the following:

(a) Cataloguing of the fire safety equipment

All the fire detection systems must be catalogued under the following headings:

- (i) Location and details of equipment
- (ii) Service date

- (iii) Service frequency
- (iv) Condition of equipment
- (v) History: Usage incidents, breaking, etc.

(b) Provision of "As Built"

The Contractor must create and maintain accurate as-built fire detection layouts. These layouts must clearly show the location and identification number of each device within the system, and the Contractor is responsible for updating the layouts whenever changes are made to the system.

8.0 LOGGING AND RECORDING PROCEDURES

The Service Provider shall create and maintain accurate a logging and recording system as part of his maintenance control plan. This shall consist of a log and record book, which shall be utilised to log and record all service records, system checks, breakdowns, maintenance visits, inspections, etc.

The logbook shall be stored in a safe place as agreed with WITS University. Copies of the monthly entries and recordings into the logbook shall be submitted by the Service Provider together with his monthly report to the University's representative. A copy of the logbook shall be in log book holder next to the fire detection panel.

The logbook shall be structured to include at least the following:

- (a) Service records
- (b) Inspection and maintenance actions
- (c) Breakdown reports
- (d) Inspection and test comments and reports.

9.0 REPAIR WORK TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

9.1 FIRE DETECTION

9.1.1 GENERAL

All repair work shall be executed using approved materials and equipment suitable to the systems and/or installations they serve. The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all applicable additional specifications included in this document.

All new equipment, materials and systems shall be furnished with a written warranty of a defects liability period of 12 months commencing on the date of issue of a certificate for completion of the repair work. These warranties shall be furnished in favour of WITS University.

9.1.2 REPAIR WORK OF EXISTING FIRE DETECTION SYSTEMS

The Service Provider shall at the start of the maintenance contract inspect, record and report on all the existing fire detection systems listed in this specification.

This inspection and report shall comprise the following:

- (a) Establishing the condition of all systems,
- (b) Reporting all defects to systems,
- (c) Recording compliance of systems in respect of the governing regulations at the time of the start of the Contract,
- (d) Recording all systems with an identifying system,
- (e) Details of all systems,
- (f) Listing of latest service.

The Service Provider shall report on the above in writing to the University's Representative.

9.1.3 SITE ASSESSMENT AND INSPECTION

Site assessments shall include but not be limited to the following:

- (a) Conduct a detailed inspection of the fire detection system, including control panels, detectors, manual call points, sounders, and interfaces.
- (b) Identify any damaged, faulty, or non-compliant components.

9.1.4 FAULT-FINDING & DIAGNOSTICS

- a) Fault-finding and diagnostics of the fire detection systems shall include but not be limited to the following:
Use appropriate test equipment and procedures to trace system faults. The Service Provider shall, when servicing or any other approved work, have available (on site) sufficient plant, tools and test equipment in sound working condition and of the required capacity for carrying out the work in an efficient and workmanlike manner. All tools / equipment should be appropriately marked.
- b) Should the Client be of the opinion that the plant tools or test equipment used by the Service Provider are inefficient, inadequate or otherwise unsuitable for use on the works, he will have the right to instruct the Service Provider to provide such

additional or approved plant, tools and test equipment which he considers necessary for carrying out the work in a satisfactory manner. Under no circumstances may tools / equipment be borrowed from the Client.

- c) Diagnose issues including open circuits, earth faults, false alarms, and communication failures.

9.1.5 REPAIR WORKS

Repair work to the fire detection systems shall include, but not be limited to the following:

- (a) Replace or repair defective components (e.g., smoke detectors, heat detectors, modules, batteries, wiring).
- (b) Reconfigure or reprogram control panels as necessary.
- (c) Update zone charts and labelling, if changes were made
- (d) Service provider to decommission faulty Conventional Fire panels and then install and commission to ZP3 type panels after obtaining written approval from the client.
- (e) Service Provider to ensure that all fire panels are interfaced with computer at the Central Control Room. The Service provider to be paid as per the rate that is to be priced for in the Bill of Quantities.

9.1.6 TESTING & COMMISSIONING

Testing and commissioning to the fire detection systems shall include, but not be limited to the following:

- (a) Conduct full functional testing of the repaired system.
- (b) Confirm proper operation of all zones, sounders, and warning devices.

9.1.7 REPORTING & HANDOVER

Reporting and handover of the fire detections shall include, but not be limited to the following:

- (a) Provide a detailed service and fault report.
- (b) Submit a Certificate of Compliance or system restoration confirmation.
- (c) Provide maintenance recommendations.

9.1.8 DELIVERABLES

Deliverables shall include, but not be limited to the following:

- (a) Fault report and recommendations.
- (b) List of replaced components
- (c) Certificate of system functionality/compliance
- (d) Updated as-built documentation

9.2 FIRE SUPPRESSION

9.2.1 GENERAL

All repair work shall be executed using approved materials and equipment suitable to the systems and/or installations they serve. The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all applicable additional specifications included in this document.

All new equipment, materials and systems shall be furnished with a written warranty of a defects liability period of 12 months commencing on the date of issue of a certificate for completion of the repair work. These warranties shall be furnished in favour of WITS University.

9.2.2 REPAIR WORK OF EXISTING GAS SUPPRESSION SYSTEMS

The Service Provider shall at the start of the repair and maintenance contract inspect, record and report on all the existing fire detection systems listed in this specification.

This inspection and report shall comprise the following:

- (a) Establishing the condition of all systems,
- (b) Reporting all defects to systems,
- (c) Compliance of systems in respect of the governing regulations at the time of the start of the Contract,
- (d) Recording all systems with an identifying system,
- (e) Details of all systems,
- (f) Listing of latest service.

The Service Provider shall report on the above in writing to the WITS University and/or University's Representative.

9.2.3 SITE ASSESSMENT AND INSPECTION

Site assessments shall include but not be limited to the following:

- a) Conduct a detailed inspection of the gas suppression system, including cylinders, valves, discharge nozzles, control panels, detectors, manual release, sounders, room integrity and interfaces.
- b) Identify any damaged, faulty, or non-compliant components.

9.2.4 FAULT-FINDING & DIAGNOSTICS

Fault-finding and diagnostics of the gas suppression systems shall include but not be limited to the following:

- a) Fault-finding and diagnostics of the fire detection systems shall include but not be limited to the following:

Use appropriate test equipment and procedures to trace system faults. The Service Provider shall, when servicing or any other approved work, have available (on site) sufficient plant, tools and test equipment in sound working condition and of the required capacity for carrying out the work in an efficient and workmanlike manner. All tools / equipment should be appropriately marked.

- b) Should the Client be of the opinion that the plant tools or test equipment used by the Service Provider are inefficient, inadequate or otherwise unsuitable for use on the works, he will have the right to instruct the Service Provider to provide such additional or approved plant, tools and test equipment which he considers necessary for carrying out the work in a satisfactory manner. Under no circumstances may tools / equipment be borrowed from the Client.
- c) Diagnose issues including open circuits, earth faults, false alarms, and communication failures. Use appropriate test equipment and procedures to trace system faults. Ensure control panel is getting adequate power supply. Simulate a power loss and check if batteries maintain system operation

9.2.5 REPAIR WORKS

Repair work to the gas suppression systems shall include, but not be limited to the following:

- a) Replace or repair defective components (e.g., gas cylinders, nozzles, solenoid or actuator faulty, smoke detectors, manual release, abort switch, modules, batteries, wiring).
- b) Reconfigure or reprogram control panels as necessary.

- c) Service Provider to ensure that all fire panels are interfaced with computer at the Central Control Room. The Service provider to be paid as per the rate that is to be priced for in the Bill of Quantities.

9.2.6 TESTING & COMMISSIONING

Testing and commissioning of the gas suppression systems shall include, but not be limited to the following:

(a) Commissioning Checks – Before energizing anything

Verify installation

- All cylinders are installed, secured, and correctly labelled.
- Piping is installed according to design drawings and securely supported.
- Nozzles are correct size and position (check with nozzle data sheet).
- Manual release, abort switches, and signage are installed properly.

Pressure Checks:

- Verify cylinder pressures are within the correct range.
- Check if cylinder seals and safety devices are intact.

Wiring Checks

- Confirm correct cabling, terminations, and continuity.
- Insulation resistance tests on all circuits (especially detection and solenoids).

(b) Panel Power-Up and Initial Testing

- Power up the main control panel
- Check that no faults or troubles are present.
- Test the following individually:
 - Power supply (AC and backup battery).
 - Communication to all devices (smoke detectors, manual stations, abort switches, pressure switches, etc.)
 - Sounders, strobes, and alarms.

(c) Functional Test

Test Type	Purpose	Method
Smoke Detection Test	Verify detection triggers pre-alarm/alarm	Use aerosol smoke tester to activate smoke detectors.
Manual Release Test	Check manual activation function	Simulate pulling manual release (disable solenoids during test).

Abort Switch Test	Verify release delay when abort is pressed	Trigger detection, then press abort to check delay in release signal.
Solenoid Test	Confirm release mechanism	Energize solenoid manually without discharging agent (use mechanical lock-out or test mode).

(d) Room integrity Test (Door Fan Test)

- To produce a method statement that is approved by the University's representative before commencing.
- Ensure room holds the agent for enough time that conforms to industry norms and standards.
- Set up blower door equipment.
- Pressurize or depressurize the room.
- Measure leakage rate.
- If too much leakage, sealing improvements are needed (e.g., sealing cable penetrations, doors).

(e) Full System Test (Simulated Discharge without Agent Release)

Perform a full end-to-end system test by simulating a fire condition:

- Two detectors go into alarm (double-knock activation).
- Countdown timer starts (discharge delay time, typically 30 seconds).
- Alarm sounders and visual indicators activate.
- Solenoid release circuit energizes (without opening the agent valve if mechanical safety pin/stop is engaged).

(f) Final Steps

- Re-enable all systems after testing.
- Remove any testing lockouts, enable solenoids, and confirm live status.
- Update Documentation
 - Record all test results
 - Update system drawings if there were changes
 - Create a Test & Commissioning Report signed by both installer and WITS University representative.
- Train WITS University representative team on system operation, manual release, abort, and emergency procedures.

9.2.7 REPORTING & HANDOVER

Reporting and handover of the gas suppression systems shall include, but not be limited to the following:

- Provide a detailed service and fault report.
- Submit a Certificate of Compliance or system restoration confirmation.

- c) Provide maintenance recommendations, if required.

9.2.8 DELIVERABLES

Deliverables shall include, but not be limited to the following:

- a) Fault report and recommendations.
- b) List of replaced components
- c) Certificate of system functionality/compliance
- d) Updated as-built documentation

10. MAINTENANCE TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

10.1 FIRE DETECTION

10.1.1 GENERAL

Three monthly maintenance/servicing responsibilities for each installation including all units and components as specified, shall commence with access to the site.

Maintenance of the completed installation shall commence upon the issue of a certificate of practical completion for repair work and shall continue for the remainder of the 60-month contract period.

This shall include:

- (a) Routine preventative maintenance,
- (b) Corrective maintenance, and
- (a) Breakdown maintenance,

All maintenance work shall be executed in accordance with the relevant codes of practice, statutory regulations, standards, regulations, municipal laws and by-laws and the manufacturers' specifications and codes of practice.

All new equipment, components and materials supplied and installed under the maintenance contract shall be furnished with a prescribed manufacturer's warranty.

The maintenance work and items are to be categorised for each maintenance activity under the following headings:

- (a) Smoke detectors
- (b) Manual call points
- (c) Sounders/strobe lights

- (d) Relays
- (e) PH30 cables
- (f) Heat detectors
- (g) Control panel

10.1.2 ROUTINE PREVENTATIVE MAINTENANCE

The routine maintenance work to be performed and executed shall include but not be limited to the items listed below under the respective headings. The purpose is to ensure ongoing reliability, compliance with safety regulations, and early detection of faults or potential failures.

These actions and findings shall be logged and reported on the relevant approved schedules and reports.

System Inspection

System inspection shall include at least the following actions and shall be scheduled in accordance with the relevant regulations,

- (a) Visual inspection of all fire detection and alarm system components.
- (b) Check for physical damage, corrosion, loose connections, dust build-up, or signs of tampering.
- (c) Inspect system panel and LED indicators for faults or abnormal conditions.

Functional Testing

Functionality testing shall include at least the following actions

- (a) Test a representative sample of detectors and manual call points (MCPs) as per SANS 10139 schedule (e.g., 25% per quarter, 100% annually).
- (b) Test all sounders, beacons, and alarm notification appliances.
- (c) Confirm operation of control panels, repeaters, and power supplies (including battery condition and voltage levels).
- (d) Test interfaces to other systems (e.g., fire suppression, HVAC shutdown, access control) if applicable.

System Cleaning

System cleaning shall include at least the following actions

- (a) Clean smoke and heat detectors with approved tools to remove dust and contaminants.

- (b) Clean control panels and MCPs as needed.

Programming & Configuration

Programming and configuration of the system shall include at least the following actions

- (a) Verify zone configurations and labelling accuracy.
- (b) Update device names or system software if required and approved.

Documentation & Reporting

Documentation and reporting of the system shall include at least the following actions

- (a) Record all test results, faults found, and corrective actions taken.
- (b) Submit a detailed maintenance report after each visit.
- (c) Maintain an up-to-date service log on site.

Frequency of Maintenance

Maintenance shall be performed on a quarterly basis and testing must be conducted.

Deliverables

Deliverables shall include at least the following

- (a) Signed maintenance reports.
- (b) Log of devices tested and cleaned.
- (c) Updated system documentation.
- (d) Certificates of compliance (for annual maintenance or regulatory inspections).

Client Responsibilities

Client responsibilities shall include at least the following

- (a) Provide safe and uninterrupted access to all fire detection system components.
- (b) Notify staff in advance of testing to avoid alarm panic.

- (c) Maintain fire system logbook accessible to Service Provider.

10.1.3 CORRECTIVE MAINTENANCE

The Service Provider shall inspect and check all equipment, materials, systems and installations for any pending breakdowns, maladjustments or anomalies of equipment.

The Service Provider shall report and take actions to correct such shortfall.

10.1.4 BREAKDOWN MAINTENANCE

All breakdown maintenance shall be done in accordance with the relevant specifications, standards, regulations and codes.

The Service Provider shall have access to the necessary spares, equipment and tools for any possible breakdowns.

- a) The Service Provider shall provide a standby phone that is always attended to – twenty-four (24) hours a day, seven (7) days per week, for the duration of the contract.
- b) All costs related to the standby service are for the Service Provider account i.e. procurement of the devices (this includes mobile phone, chargers and battery banks), airtime and data purchases, shall be at the cost of the Service Provider.
- c) The standby service shall be carried out at the cost as specified in the BoQ under Corrective Maintenance. Standby staff shall be equipped with adequate communication equipment to ensure a minimum delay in the response to emergency call-backs.
- d) In the event of faults or other events requiring urgent attention, the Service Provider shall warranty attending to the request within 1 hour. Any work/event requiring extended repair time shall be discussed and agreed between the Client.

10.2 FIRE SUPPRESSION

10.2.1 GENERAL

Three monthly maintenance/servicing responsibilities for each installation including all units and components as specified, shall commence with access to the site. A difference shall be made in payment prior to and after practical completion of the work.

Maintenance of the completed installation shall continue for the remainder of the 60-month contract period.

This part of the Contract shall include:

- (a) Routine preventative maintenance,
- (b) Corrective maintenance, and
- (c) Breakdown maintenance.
- (d) Once off Integrity Test

All maintenance work shall be executed in accordance with the relevant codes of practice, statutory regulations, standards, regulations, municipal laws and by-laws and the manufacturers' specifications and codes of practice.

All new equipment, components and materials supplied and installed under the maintenance contract shall be furnished with a prescribed manufacturer's warranty.

The maintenance work and items are to be categorised for each maintenance activity under the following headings:

- a) Gas Cylinders
- b) Nozzles
- c) Solenoid
- d) Control panel
- e) Smoke detectors
- f) Manual release and abort switch
- g) Sounders/strobe lights
- h) Relays
- i) PH30 cables

10.2.2 ROUTINE PREVENTATIVE MAINTENANCE

The routine maintenance work to be performed and executed shall include but not be limited to the items listed below under the respective headings. The purpose is to ensure ongoing reliability, compliance with safety regulations, and early detection of faults or potential failures.

These actions and findings shall be logged and reported on the relevant approved schedules and reports.

System Inspection

System inspection shall include at least the following actions and shall be scheduled in accordance with the relevant regulations,

- a) Visual inspection of all gas suppression, fire detection and alarm system components.
- b) Check for physical damage, corrosion, loose connections, dust build-up, or signs of tampering.
- c) Inspect system panel and LED indicators for faults or abnormal conditions.

Functional Testing

Functionality testing shall include at least the following actions

- a) Test a smoke detection system, verify detection triggers pre-alarm.
- b) Test all sounders, beacons, and alarm notification appliances.
- c) Check manual activation function, disable solenoid during testing.
- d) Verify release delay when abort is pressed.
- e) Solenoid test – energize solenoid manually without discharging agent using test mode.
- f) Hydrostatic testing as per SANS 10105-1 & SANS 1825 – hydrostatic testing of gas cylinders to be conducted after every 10 years.

System Cleaning

System cleaning shall include at least the following actions

- a) Clean nozzles, piping and smoke detectors with approved tools to remove dust and contaminants.
- b) Clean control panels, manual switch and abort switch as needed.

Programming & Configuration

Programming and configuration of the system shall include at least the following actions

- a. Update system software when it is required and approved by the client.

Documentation & Reporting

Documentation and reporting of the system shall include at least the following actions

- a) Record all test results, faults found, and corrective actions taken.
- b) Submit a detailed maintenance report after each visit.
- c) Maintain an up-to-date service log on site.

Frequency of Maintenance

Maintenance shall be performed on a Quarterly basis, testing must be conducted.

Deliverables

Deliverables shall include at least the following

- a) Signed maintenance reports.
- b) Log of devices/equipment tested and cleaned.
- c) Updated system documentation (where applicable)
- d) Certificates of compliance (for annual maintenance or regulatory inspections).

Client Responsibilities

Client responsibilities shall include at least the following

- a) Provide safe and uninterrupted access to all gas suppression system components.
- b) Notify staff in advance of testing to avoid alarm panic.
- c) Maintain gas suppression system logbook accessible to Service Provider.

10.2.3 CORRECTIVE MAINTENANCE

The Service Provider shall inspect and check all equipment, materials, systems and installations for any pending breakdowns, maladjustments or anomalies of equipment.

The Service Provider shall report and take actions to correct such shortfall.

10.2.4 BREAKDOWN MAINTENANCE

All breakdown maintenance shall be done in accordance with the relevant specifications, standards, regulations and codes.

The Service Provider shall have access to the necessary spares, equipment and tools for any possible breakdowns.

- a) The Service Provider shall provide a standby phone that is always attended to – twenty-four (24) hours a day, seven (7) days per week, for the duration of the contract.

- b) All costs related to the standby service are for the Service Provider account i.e. procurement of the devices (this includes mobile phone, chargers and battery banks), airtime and data purchases, shall be at the cost of the Service Provider.
- c) The standby service shall be carried out at the cost as specified in the BoQ under Corrective Maintenance. Standby staff shall be equipped with adequate communication equipment to ensure a minimum delay in the response to emergency call-backs.
- d) In the event of faults or other events requiring urgent attention, the Service Provider shall warranty attending to the request within 1 hour. Any work/event requiring extended repair time shall be discussed and agreed between the Client.

11 SCHEDULE OF FIRE FIGHTING EQUIPMENT PER CAMPUS

11.1 FIRE DETECTION

The estimated quantity and types of fire detection equipment requiring maintenance and servicing are as follows:

11.1.1 ADDRESSABLE ZP2 SYSTEMS

Building name	Panel	Smoke detector	Heat detector	Sounder/St robes	Modules	Call points	Vesda	Wireless call points	Wireless detectors	Wireless sounders	Wireless strobes
Albert wessles	1	36	1	26		11					
Barnato Hall extention	1	18	9	18	2	13		6	45		14
Barns (Wits Club)	1			1				3	12	3	
Campus lodge	1	106	43	21		7					
CESSM (WEC)	1	48	2	20	4	10					
Chamber of Mines	2	330	4	90	42	30					
Coach House & Outeniqua	1	31		20		4		3	20		4
C.L.T.D	1	32	2	6		4					
David Webster extension	1	30		33		8					
Digatal Arts Building	1	35	3	22		10					
Donald Gordon	1	58	3	9		7					
Emthonjeni	1	56	4	8		6					
Flower Hall	1	66	9	22	10	9					
Gate House	1	156		18		18					
Generator Farm East	1	13		4		1					
Generator Farm West	1	9		4	2	1					
Hall 29	1	15	1	6	2	12					
Harold Holmes	1	73		18	3 (Gas panels)	9	6				
Highfield House	1	65		4		6					
Highfield Kitchen	1	18	14	10		4					
IBM(47 juta)	1	46	3	6		6					
Jan Smuts house	1				1(radio mod)			4	26	6	
Juta Street 41&43	1	55	2	10	2	6					
Knockando Lighton hall new block	1	66		60		6					
Marang (WEC)	1	31	1	7		3					
Chris Seabrook Auditorium	1	59	4	10		9					
Park Town Village (Beaulieu House)	1	55	7	14		16					
Planatarium	1	71	3	9		9					
Sanctuary	1	25	2	4		3					
Savernake House	1	15	4	6	1	3					
Student Union (WEC)	1	45	3	8		8					
Sunnyside extention	1	115		9		7					
the centre or entreperneurship	1	13	2	3		4					
Wits Theatre	1	88		8		10					
Trematon House	1	50		8		4					
Umthombo u10 and 11	1	10		4	2	4					
Van Riet Louw	1	50		6		8					
WEC squash courts	1	20		6		8					
WEC Wozani block (Williams)	1	88		8	8	9					
WEC Boyce Block	1	11		4		2					
West Campus village	2	19	82	14	13						
Wits Plus	1	53		8		7					
WBS Marketing	1	19	1	4		6					
Yale Road Telescope	1	13	1	8		5					
Total	46	2212	210	584	88	313	6	16	103	9	18

Note: Tenderers are encouraged to conduct a site visit before submitting the quotation

11.1.2 ADDRESSABLE ZP3 SYSTEMS

Building name	Panel	Smoke detector	Heat detector	Sounders/St robes	Modules	Call points	Vesda	Wireless call points	Wireless detectors	Wireless sounders	Wireless heat
Alumni House	1			1	1(radio mod)			1	9		
Barnato Hall	1	60	12	36	1	27					
Bernard Price	1	71	9	19	7	3					
Bara Gemp	1	22	2	7		5					
Bara birth to twenty	1	52	1	7		7					
Biology	1	63		26		11					
Braam Centre	1	190	19	58	19	34					
CCDU and OHSE	1	48	1	9	2(beams)	7					
CLM	1	30		24	1	8					
CLM Faculty Building (COOPER)	1	122	6	123	6	16					
College House	1	46		27		16					
Commerce library	1	46	2	10	6	7					
Conovocation dining hall	1	8	6	2	1(beam)	3					
Dalrymple House	1	48		26		11					
DJ du Plessis	1	28	1	10	5	14					
Eoh East	1	140	9	35	1(beam)	19					
Eoh West	1	217	46	30		13					
Fine Arts Dental	1	32	15	3		10					
Genmim	1	48	1	13	1	7					
Geoscience	1	80		2		12					
Girton	1	108		73	13	48					
Graduate Logde	1		9	9		3					
Hillman building	1	38	8	13	1	12					
Hofmeyr house	1	15	4	5		4					
Humphery Raikes	1	172	5	41		15					
International House	1	5	96	13	12	15					
JHB Hospital blue block	1	148	2	23		24					
John Moffat	1	41	1	9	3	15					
Jubilee hall	1	79		37	1(radio mod)	35		2	3	1	5
Knockando Lighton Hall	1	36	11	32		30					
Knockando Williams Hall	1	27		23		16					
Linder auditorium	1	56	2	6	6	2					
Marketing Business school	1	17	1	2		3					
Maths center north	1	316	7	53	27	17					
Maths center south	1	95		33	33	10					
Matrix	2	166	26	50	23	27					
Medhurst	1	108		73	13	48					
Medical school	3	290	34	151	46	123					
New Commerce building	1	46		24		18					
North Lodge annex	1	15	1	5		1					
North Lodge	1	5	3	3	2			12	2	7	25
North West engingeering	1	48	15	21	2(beams)	9					
Noswal Hall	3	477	177	236	25	51					
Origins South block	1	82		15	9	15			26		1
Origins North block	1	63	3	14	3	11					
Oliver Schriener	1	54	2	21	7	24					
Phillip Tobias	3	271	15	83	16	44					
Physics	1	156									
PIMD west campus	1	56	4	15	3	7					
Radiation unit (PDH)	1	18		3	1(beam)	3					
Rieth Hall	1	108		73	13	48					
Robert Sobukwe	1	105	4	14	4	10					
School of arts	1	64		31		18					
School of constraction economics	1	63	1	29	1	9					
School of public heath	1	289	5	19	33	21					
Solomon Mahlangu house	4	429	18	134	33						
Solomon Mahlangu data center	1	91		2	31	2	4				
Southwest engineering	1	38		25		10					
Squash courts	1	24		7		10					
Sunnyside 1 (old)	1	80	3	23	4	13					
The hub (pdh)	1	185	9	37	50	18					
The Oval	1	32	1	10		2					
Trematon place	1	18		4		5					
Tshimologong	1	40	1	11	1	5					
University corner	2	194	4	42	35	50	7		8	3	
Wartenwieler library	1	189	2	31	5	29					
WEC admin	1	166	5	35	16	16					
William Cullen library	1	134		4	1	8			1		
Wits Science Stadium	1	193	2	90	13	18					
Total	80	6801	611	2175	528	1152	11	15	49	11	31

11.1.3 CONVENTIONAL SYSTEMS

Building name	Panel	Smoke detector	Heat detector	Sounders	Strobes	Modules	Call points	Beams
3 Jubilee	GST	22	4	3			4	
3 Jubilee annexe	GST	6	2	2			4	
9 Wolmarans	Technoswitch	32	5	5			4	
9 Jubilee SBIMB Admin	Technoswitch	22	3	5			4	
9 Jubilee SBIMB Labs	Technoswitch	12	2	3			4	
Bowls club	Technoswitch	10	4	3			4	
Bozzoli	Technoswitch	22	4	7			8	2
Chamber of mines 3rd	GAS Technoswitch	4		2	2		1	
Chamber of mines 1st	GAS Technoswitch	8		2	2		1	
David Webster	Technoswitch	44		16			12	
Fnb server room	GAS Technoswitch	2		2			1	
Fnb retail	Technoswitch	4	2	1			2	
Geoscience basement	GAS Technoswitch	4		2			1	
Grounds keeper ablution block	Technoswitch	6	2	2			3	
Hockey club (WEC)	Technoswitch	6		1			2	
John moffat prefab	Technoswitch	6		2			2	
Judo club	GST	10	2	2			2	
Math Centre North Server	GAS Technoswitch	4		2			1	
Maths Centre South Server	GAS Technoswitch	4		2			1	
Nunnery	Technoswitch	10		2			2	
OLS Plants archive	GAS Technoswitch	2		2			1	
OLS Insects archives	GAS Technoswitch	2		2			1	
Origins Rock Art Archive 1	GAS Technoswitch	2		2			1	
Origins Rock Art server	GAS Technoswitch	2		2			1	
Origins Rock Art Archive 2	GAS Technoswitch	2		2			1	
PG club	Technoswitch	8	2	1			2	
Physics Nanotech Lab	GAS Technoswitch	8		2			1	
PIMD drawing office	GAS Technoswitch	4		2			1	
Procurement archives	GAS Technoswitch	2		2			1	
Rugby stadium	Technoswitch	8	2	4			3	
Science Park Frankenwald	GST	25	3	3			2	
Services archive	GAS Technoswitch	2		2			1	
Soccer stadium	Technoswitch	10	3	4			3	
Solomon Mahlangu Legal office	GAS Technoswitch	2		2			1	
Sports Admin	Technoswitch	48	6	18			8	
Sports Academy (Squash courts)	Technoswitch	14	1	2			2	
Sterkfontein zinc caves	Technoswitch	4		1			1	
Swimming pool tower	GST	1		1			1	
Tower of Light Retail	Technoswitch	4	2	1			2	
Wits club	Technoswitch	25	4	4			4	
Ward 7 Bara	Technoswitch	6		2			1	
Umthombo	Technoswitch	48		22			12	
Yale Road Staff Quarters	Technoswitch	20		5			10	
Youth stadium	Technoswitch	40	2	8			6	
Total		527	55	162	4	0	130	2

Note: Tenderers are encouraged to conduct a site visit before submitting the quotation

11.2 FIRE SUPPRESSION

11.2.1 SCHEDULE OF GAS SUPPRESSION SYSTEM PER CAMPUS

The estimated quantity and types of gas suppression system equipment requiring maintenance and servicing are as follows:

GAS SUPPRESSION SYSTEMS ON WITS CAMPUS							
Building	Panel	Detectors	Sounders/Bells	Cylinder serial No	Fill Date	Volume	Gas Type
ARM Building Chamber of Mines							
Anechoic Chamber	Technoswitch	2	2	340505	08-03-2007	28kg	HFC125
				340517	08-03-2007	28kg	HFC125
Convergence Lab	Technoswitch	8	4	M0064	29-08-2022	30kg	HFC 227ea
				M0081	29-08-2022	9kg	HFC 227ea
				M0064	29-08-2022	25kg	HFC 227ea
Commerce Law Management							
1 st Floor UPS Room	Technoswitch	4	2	2312	09-11-2016	35kg	HFC 227ea
Ground floor Server room	Technoswitch	4	2	9480-0326	08-07-2011	159kg	FM200
PIMD Building							
Procurement Archive	Technoswitch	2	2	814	30-05-2015	35kg	HFC 227ea
Services Archive	Technoswitch	2	2	792	11-03-2013	30kg	HFC 227ea
				763	11-03-2013	30kg	HFC 227ea
Drawing Office	Technoswitch	2	2	290	04-10-2012	21kg	HFC 227ea
				636	04-10-2012	34kg	HFC 227ea
				666	04-10-2012	34kg	HFC 227ea
TW Khambule							
T W Khambule Admin Server Room	Technoswitch	2	2	480	27-11-2013	21kg	HFC 227ea
T W Khambule Labs Server Room 1	Technoswitch	2	2	158	16-10-2014	48kg	HFC 227ea
T W Khambule Labs Server Room 2	Technoswitch	2	2	455022	29-09-2020	36kg	HFC 227ea
FNB Building							
FNB Building Server Room	Technoswitch	2	2	870	13-08-2015	13kg	HFC 227ea
Origins Center Rock Art							
Archive Room 1	Technoswitch	2	2	05/100143 UT	10-2005	92kg	Pyroshield
				05/100189 UT	10-2005	91.6kg	Pyroshield
				05/100210 UT	10-2005	93.7kg	Pyroshield
AV Server Room	Technoswitch	2	2	198	22-04-2008	33kg	HFC 227ea
				173	22-04-2008	33kg	HFC 227ea
Archive Room 2	Technoswitch	2	2	05/100151 UT	10-2005	92.4kg	Pyroshield
				05/101454 UT	10-2005	92.1kg	Pyroshield
				05/100152 UT	10-2005	90.9kg	Pyroshield

Solomon Mahlangu							
Legal Office 5 th Floor	Technoswitch	2	2	511	20-05-2012	28kg	HFC 227ea
Data Centre	Ziton ZP3	91	6				
Bank 1				T7742086	10-2007	16.3m3	Inergen
				T7743149	10-2007	16.3m3	Inergen
				T7747077	10-2007	16.3m3	Inergen
				T7747122	10-2007	16.3m3	Inergen
Bank 2				T7749033	10-2007	16.3m3	Inergen
				T7749024	10-2007	16.3m3	Inergen
				T7748065	10-2007	16.3m3	Inergen
				T7742035	10-2007	16.3m3	Inergen
				T7745089	10-2007	16.3m3	Inergen
				T7742015	10-2007	16.3m3	Inergen
				T7747084	10-2007	16.3m3	Inergen
				T7747089	10-2007	16.3m3	Inergen
Bank 3				T7543012	10-2007	16.3m3	Inergen
				T7541122	10-2007	16.3m3	Inergen
				T7542077	10-2007	16.3m3	Inergen
				T7541088	10-2007	16.3m3	Inergen
				T7537027	10-2007	16.3m3	Inergen
Bank 4				T7433030	10-2007	16.3m3	Inergen
				T7538121	10-2007	16.3m3	Inergen
				T7433133	10-2007	16.3m3	Inergen
				T7542048	10-2007	16.3m3	Inergen
				T7434118	10-2007	16.3m3	Inergen
Bank 5				T7539109	10-2007	16.3m3	Inergen
				T7541130	10-2007	16.3m3	Inergen
				T7537057	10-2007	16.3m3	Inergen
				T7542021	10-2007	16.3m3	Inergen
				T7541157	10-2007	16.3m3	Inergen
Bank 6				T7538055	10-2007	16.3m3	Inergen
				T7542050	10-2007	16.3m3	Inergen
				T7538112	10-2007	16.3m3	Inergen
				T7542016	10-2007	16.3m3	Inergen
				T7541173	10-2007	16.3m3	Inergen
Bank 7				T7743116	10-2007	16.3m3	Inergen
				T7747007	10-2007	16.3m3	Inergen
				T7749165	10-2007	16.3m3	Inergen
Bank 8				T7537043	10-2007	16.3m3	Inergen
				T7749139	10-2007	16.3m3	Inergen
				T7748011	10-2007	16.3m3	Inergen
Data Centre UPS Room 1		6	2	T7542138	08-2007	16.3m3	Inergen
				T7540022	08-2007	16.3m3	Inergen
				T7540079	08-2007	16.3m3	Inergen
Data Centre UPS Room 2				T7539047	08-2007	16.3m3	Inergen
				T7540025	08-2007	16.3m3	Inergen
				T7540008	08-2007	16.3m3	Inergen

Physics Building							
Nanotechnology Transport Lab	Technoswitch	6	2	33	21-09-2010	27kg	HFC 227ea
				30	21-09-2010	27kg	HFC 227ea
				32	21-09-2010	22kg	HFC 227ea
				34	21-09-2010	22kg	HFC 227ea
				35	21-09-2010	23kg	HFC 227ea
Oppenhiemer Life Sciences							
Insect Archive 1	Technoswitch	4	2	NK26669	06-2003	74.7kg	CO2
				NK26665	06-2003	73kg	CO2
				NK26767	06-2003	72.9kg	CO2
				NK26658	06-2003	74.5kg	CO2
				NK26662	06-2003	72.4kg	CO2
				NK26701	06-2003	74.2kg	CO2
Insect Archive 2	Technoswitch	4	2	NK26751	06-2003	73.8kg	CO2
				NK26757	06-2003	73kg	CO2
				NK26663	06-2003	73.5kg	CO2
				NK26656	06-2003	76.2kg	CO2
				NK26699	06-2003	73.7kg	CO2
				NK26754	06-2003	74kg	CO2
				NK26666	06-2003	73.3kg	CO2
				NK26661	06-2003	73.7kg	CO2
				NK26637	06-2003	72.5kg	CO2
				NK26667	06-2003	73.7kg	CO2
				NK26670	06-2003	74.7kg	CO2
				NK26657	06-2003	75.9kg	CO2
				NK26753	06-2003	73.5kg	CO2
				NK26698	06-2003	73.4kg	CO2
Geoscience Building							
Optically Stimulated Luminescence L	Technoswitch	4	2	1755035	08-07-2009	80kg	HFC 125
Harold Holmes Library							
Basement Archive 1	Technoswitch	2 Vesda	2	293	05-10-2022	53kg	HFC 227ea
				306	05-10-2022	53kg	HFC 227ea
				307	05-10-2022	53kg	HFC 227ea
				294	05-10-2022	53kg	HFC 227ea
				301	05-10-2022	53kg	HFC 227ea
				303	05-10-2022	53kg	HFC 227ea
Basement Archive 2	Technoswitch	2 Vesda	2	305	05-10-2022	62kg	HFC 227ea
				304	05-10-2022	62kg	HFC 227ea
				297	05-10-2022	62kg	HFC 227ea
				300	05-10-2022	62kg	HFC 227ea
Basement Archive 3	Technoswitch	2 Vesda	2	299	05-10-2022	58kg	HFC 227ea
				277	05-10-2022	58kg	HFC 227ea
				280	05-10-2022	58kg	HFC 227ea
				295	05-10-2022	58kg	HFC 227ea
				238	05-10-2022	58kg	HFC 227ea
				302	05-10-2022	58kg	HFC 227ea
				296	05-10-2022	58kg	HFC 227ea
				283	05-10-2022	58kg	HFC 227ea
Medical School							
Server Room 1	Technoswitch	2	2	255294	13-04-2016	10kg	HFC 125
Server Room 2	Technoswitch	2	2	322	02-1999	6.5 Ltr	FM 200
2 nd Floor Bone Archive	Technoswitch	6	2	127	07-01-2010	47kg	HFC 227ea
				11	07-01-2010	47kg	HFC 227ea
				160	07-01-2010	47kg	HFC 227ea
				79	07-01-2010	47kg	HFC 227ea
				188	07-01-2010	47kg	HFC 227ea
				139	07-01-2010	47kg	HFC 227ea
				112	07-01-2010	47kg	HFC 227ea
				49	07-01-2010	47kg	HFC 227ea
				94	07-01-2010	47kg	HFC 227ea

12 MAINTENANCE AND SERVICING SCHEDULE OF FIRE DETECTION AND GAS SUPPRESSION SYSTEM

SERVICING SCHEDULE

Gas suppression system to be inspected every three months for a period of 5 years.

Equipment	1 st year Services	2 nd year Services	3 rd year Services	4 th year Services	5 th year Services
Fire Detection	4	4	4	4	4
Gas suppression system	4	4	4	4	4

13 FULL-TIME ON-SITE TECHNICIANS

- (a) The Service Provider shall ensure that there is a Technician on site at a full-time basis during business hours. Business hours shall be from 7am to 5pm during weekdays. His services shall be paid as the rate priced in the Bill of Quantities. This rate shall include travelling, personal protective equipment, tools and all other expenses associated with their upkeep on site.
- (b) The service provider shall not charge call out rates for repair work/breakdown maintenance carried out by this technician during business hours.

14 WARRANTY

The Service Provider must provide, at least a twelve (12) month OEM warranty on the equipment after installation. Equipment that fails and is found to be defective in workmanship or materials shall be replaced by the supplier at its own cost with equipment carrying the same warranty as the original offer. All workmanship shall be required to carry a twelve-month warranty

15 INSURANCE COVER

The successful bidder shall provide public liability cover of R45 million and product liability of R 5 million within one month of accepting the appointment. Successful bidder's appointment will be subject to submission of proof of insurance cover to the University.