

RIDER 101 - SCOPE OF WORK AND SPECIFICATIONS FIRE ALARM SYSTEM TESTING AND INSPECTION SERVICES

I. General

1. This scope of work describes testing, inspection and maintenance services required for The University of Texas MD Anderson's ("MD Anderson") fire alarm systems.
2. All work performed by the Contractor shall be completed by July 31 of each year with final billing by August 5 of each year.
3. MD Anderson, at its option, may add or delete devices or buildings over the life of this agreement. Pricing submitted by the Contractor on Rider 102 – Price Schedule will be used as the basis for determining new pricing resulting from a change in the device or building inventory.
4. The Contractor may charge for actual mileage from the appropriate Contractor office location to perform any work that may be performed in the future at MD Anderson's Smithville, TX or Bastrop, TX facilities. Such charge may not exceed the prevailing State of Texas mileage reimbursement rate in effect; such rate is currently set at fifty-five cents (\$0.55) per mile.
5. Holidays officially recognized by MD Anderson supersede Contractor's holidays.
6. Normal business hours for MD Anderson are Monday through Friday, 7:00 a.m. – 5:00 p.m., excluding holidays officially recognized by MD Anderson.
7. MD Anderson's Department of Environmental Health and Safety ("EH&S") has responsibility for the oversight of this agreement.
8. MD Anderson may implement a computerized life safety management software package utilizing handheld pocket PC devices during the life of this agreement. MD Anderson's EH&S may provide such pocket PC devices to the Contractor at no cost and Contractor's personnel would be required to use the devices to conduct and document inspections.

II. Responsibilities

1. All inspections shall be performed, at a minimum, under the direct on-site supervision of Contractor's State of Texas licensed Fire Alarm Technician.
2. All Contractor personnel shall be qualified, trained and possess the experience necessary to operate all fire control panels per the manufacturer's instructions including bypassing points, viewing historical logs and looking up points in the system.
3. All Contractor personnel shall have the ability to correctly and professionally test and inspect MD Anderson's fire alarm system and related components.
4. Qualifications of Contractor's personnel shall include, but is not limited to, individuals with the following qualifications:
 - a. Factory trained and certified

- b. National Institute for Certification in Engineering Technologies fire alarm certified
 - c. Licensed by the State of Texas as a Fire Alarm Technician.
 - d. Certified by a state or local authority
- 5. Contractor shall perform its duties in a safe and competent manner at all times, operate equipment according to manufacturer's directions, keep cords and tools secure, keep all mechanical, electrical and control room doors closed and locked and report any unsafe conditions to MD Anderson's EH&S representative.
- 6. Upon arrival at the MD Anderson hospital campus, Contractor shall notify the designated EH&S representative. At other locations, Contractor shall page the EH&S representative as coordinated through EH&S. If the EH&S representative is not available, Contractor shall notify the EH&S supervisor at 713-792-2888.
- 7. All inspections and testing shall be performed in the presence of the designated EH&S representative. The EH&S representative shall accompany the inspector throughout the inspection, interface with hospital staff and building managers and expedite the inspection process. Before proceeding with any testing the EH&S representative shall notify all persons and facilities receiving alarms, supervisory or trouble signals and advise Monitoring Services and University of Texas Police Department (UTPD) of fire alarm system status at all times to reduce interruptions to normal operations and to prevent unnecessary personnel responses. Contractor shall not proceed with testing without direction from the EH&S representative. The EH&S representative shall coordinate system testing to prevent interruption of critical building services or equipment.

III. Technical Requirements

The testing and inspection shall be in compliance with NFPA 72-2007.

IV. Test Methods

- 1. Controls
 - a. Control equipment shall be tested to verify correct receipt of alarm, supervisory, and trouble signals (inputs), operation of evacuation signals and auxiliary functions (outputs), circuit supervision including detection of open circuits and ground faults, and power supply supervision for detection of loss of AC power and disconnection of secondary batteries.
 - b. Integrity of single or multiple circuits providing interface between two or more control panels shall be verified. Operation or simulating operation of the equipment being supervised shall test interfaced equipment connections.
 - c. Prior to conducting any battery testing, Contractor's personnel conducting the test shall ensure that all system software stored in volatile memory is protected from loss. Batteries shall be inspected for corrosion or leakage. Tightness of connections shall be checked and ensured. If necessary, battery terminals or connections shall be cleaned and coated. Electrolyte level in lead-acid batteries shall be visually inspected. Batteries shall be replaced in accordance with the recommendations of the alarm equipment

manufacturer or when the recharged battery voltage or current falls below the manufacturer's recommendations.

- d. Operation of a battery charger shall be checked in accordance with a charger test for the specific type of battery.
- e. All primary (main) power supplies shall be disconnected and the occurrence of required trouble indication for loss of primary power shall be verified. The system's standby and alarm current demand shall be measured or verified and, using manufacturer's data, the ability of batteries to meet standby and alarm requirements shall be verified. General alarm systems shall be operated for a minimum of 5 minutes and emergency voice communications systems for a minimum of 15 minutes. Primary (main) power supply shall be reconnected at end of test.
- f. An electronic battery router may be used to perform the battery load test providing the test results are properly documented.
- g. If a UPS system dedicated to the fire alarm system is used as a required power source, the inspector shall verify correct operation of the UPS system.
- h. An initiating device shall be actuated and receipt of alarm signal at the off-premises location shall be verified.
- i. A trouble condition shall be created and receipt of a trouble signal at the off-premises location shall be verified.
- j. A supervisory device shall be actuated and receipt of a supervisory signal at the off-premises location shall be verified. If a transmission carrier is capable of operation under a single- or multiple-fault condition, an initiating device shall be activated during such fault condition and receipt of a trouble signal at the off-premises location shall be verified, in addition to the alarm signal.
- k. The correct operation and identification of annunciators shall be verified. If provided, the correct operation of annunciator under a fault condition shall be verified.

2. Detection Devices

- a. Smoke detectors shall be tested in place to ensure smoke entry into the sensing chamber and an alarm response. Testing with smoke or listed aerosol approved by the manufacturer shall be permitted as acceptable test methods. Other methods approved by the manufacturer that ensure smoke entry into the sensing chamber shall be permitted.
- b. Any of the following tests shall be performed to ensure that each smoke detector is within its listed and marked sensitivity range:
 - 1. Calibrated test method.
 - 2. Manufacturer's calibrated sensitivity test instrument.
 - 3. Listed control equipment arranged for the purpose.
 - 4. Smoke detector/control unit arrangement whereby the detector causes a signal at the control unit when its sensitivity is outside its listed sensitivity range.

5. Other calibrated sensitivity test method approved by the authority having jurisdiction.
 - c. Smoke detectors with control output functions shall be verified that the control capability shall remain operable even if all of the initiating devices connected to the same initiating device circuit or signaling line circuit are in an alarm state.
 - d. When testing cross-zoned detection devices one sensor or detector on each zone shall be operated. Occurrence of correct sequence with operation of first zone and then with operation of second zone shall be verified.
 - e. Beam detectors shall be tested by introducing smoke, other aerosol, or an optical filter into the beam path.
 - f. Heat detector testing shall be performed with a heat source per the manufacturer's recommendations for response within one minute. A test method shall be used that is recommended by the manufacturer or other method shall be used that will not damage the nonrestorable fixed-temperature element of a combination rate-of-rise/fixed-temperature element detector.
 - g. Manual fire alarm boxes shall be operated per the manufacturer's instructions. Key-operated presignal and general alarm manual fire alarm boxes shall both be tested.
 - h. The number of detection devices tested shall be compared to the number of devices programmed into the control panel by stepping through the device menu.
 - i. Any discrepancies in the number of devices tested to the number of devices programmed shall be explained and documented.
 - j. A recent programmer's report may be used for comparison in lieu of the stepping process. Missed devices shall be tested.
3. Notification Appliances
 - a. Each audible device shall be tested for correct operation. The location and model number of each audible device shall be noted in the test report. Audible information shall be verified to be distinguishable and understandable.
 - b. Each visual appliance shall be tested for correct operation. The location and model number of each device shall be noted in the test report.
 - c. Individual notification appliances may be tested by activating the signal circuit at the panel.
 - d. All notification circuits shall be tested by activating an initiating device and noting correct circuit operation.

4. Control Functions

- a. Correct operation of control functions shall be verified and documented in the test report. Control functions shall include magnetically held door release, air handler shutdown, security door control, damper control, roll down shutter controls and miscellaneous controls.
- b. In the event a control action does not occur, the fire alarm controlling point shall be checked and its status noted on the test report. When used, a fire alarm interface relay shall be checked and its status noted in the test report.

5. Elevator Recall and AHU Shutdown Testing

- a. Primary recall on all elevators equipped with primary recall shall be tested for each floor other than the alternate floor.
- b. Alternate recall shall be tested for the primary floor for each elevator equipped with alternate recall.
- c. Elevator testing shall be done on weekdays afterhours as scheduled by EH&S. Contractor shall supply two employees. MD Anderson Facilities shall provide one elevator technician to assist in elevator recall testing.
- d. Air duct detectors shall be tested or inspected to ensure that the device will sample the air stream. The test shall be made in accordance with the manufacturer's instructions.

V. Inspection Reports

A record of all inspections and testing shall be provided that includes the following information:

- 1. Date
- 2. Test frequency
- 3. Name of property
- 4. Building address
- 5. Name of person performing inspection tests, affiliation, business address and telephone number
- 6. Name, address, and representative of approving agency
- 7. Functional test results of all devices and equipment tested
- 8. System point numbers, signal circuit numbers, I/O point numbers, auxiliary circuit numbers, node numbers and other system identifiers shall be used to identify individual devices
- 9. Functional test of required sequence of operations
- 10. Signatures of tester and approved authority representative
- 11. Disposition of problems identified during test (owner notified, problem corrected, successfully retested, device abandoned in place)

12. Other tests as required by equipment manufacturers
13. Other tests as required by the authority having jurisdiction
14. Signals received at the supervising station
15. Reconciliation of the number of devices tested compared to the number of devices

VI. Discrepancies

1. Discrepancies noted in the inspection report shall include the system point or circuit identifier for that device. Failed field devices shall be marked by affixing a removable stick on dot. The dots shall be of uniform color throughout the inspection cycle.
2. If a defect or malfunction is not corrected within 24 hours at the conclusion of system inspection, testing, or maintenance, the system owner or the owner's designated representative shall immediately be informed of the impairment.
3. Discrepancies listed in the inspection report shall not include recommendations or suggestions. Recommendations and suggestions may be submitted separately or as an addendum to the inspection report. Discrepancies based on code compliance shall include the reference to the specific code.
4. Contractor must invoice maintenance using actual hours worked. Contractor may not invoice using "minimum hour" rate.
5. Any maintenance work performed by the Contractor during normal business hours must be invoiced at the "Standard Hourly Rate". Work performed outside of the normal business hours may be invoiced at the "Overtime Hourly Rate".

VII. Contractor Personnel

1. Contractor shall have a minimum of 10 years of experience in the testing and inspection of fire alarm systems.
2. Contractor shall provide all tools and materials necessary to test and inspect various fire alarm systems at MD Anderson. Contractor shall have appropriate safety equipment such as hardhats and kneepads for interstitial floors. Contractor shall observe standard safety practices at all time.
3. All Contractor personnel working at MD Anderson facilities must be in compliance with Rider 106-Premises Rules. Before beginning the scheduled inspections, Contractor personnel shall obtain MD Anderson identification badges and are required to have a current TB screening test. Contractor personnel will comply with MD Anderson premise rules regarding patient privacy, harassment, prohibition of tobacco products and institutional rules at all times.
4. Contractor personnel must complete a twenty (20) minute safety training course prior to the start of work. Contractor will contact EH&S to schedule this training.

5. Contractor personnel shall be responsible for parking fees.

VII. Contractor Staffing Requirements

1. Contractor shall provide two technicians for testing and inspecting activities. One (1) technician stationed at the fire alarm control panel and one (1) technician testing the field devices. EH&S will provide one (1) employee to accompany the Contractor's field inspector when necessary.
2. Small single control panel systems may be tested by one (1) inspector using the walk test or similar self-test feature for device testing. EH&S will provide one (1) employee to accompany the Contractor's field inspector when necessary.

VIII. Inspection/Testing Activities

The EH&S representative shall coordinate activities with the Contractor (i.e. scheduling the testing and inspections). All testing shall be performed in compliance with applicable NFPA standards and documented accordingly.

VIII. Records Reporting and Invoicing

1. Records/results of inspection, testing and maintenance must be submitted electronically to the EH&S Fire & Life Safety Supervisor within 10 working days of completion of testing of each building or agreed upon section of a building.
2. The format of the records shall be prescribed by MD Anderson and shall utilize an acceptable data format (typically either Microsoft Excel[®] or Microsoft Access[®]), at MD Anderson's discretion. If MD Anderson develops a custom software solution, MD Anderson will provide a copy of the custom software solution to Contractor but will not provide commercially available copies of the base software (e.g. Access[®] or Excel[®]). Contractor will be responsible to purchase and maintain all licensing pertaining to their own use of any said software. Samples of the current reports being used at MD Anderson are attached.
3. Contractor shall submit original invoices for payment per MD Anderson Rider 116 – Invoice Payment Requirements. Daily invoicing of work conducted shall not be acceptable.
4. Invoicing shall be on a “per building per inspection/testing” basis. For example each building shall have a total of five (5) invoices:
 - a. Initiating device & controls (except elevator recall, AHU shutdown and fire shutter/door)
 - b. Notification devices
 - c. AHU Shutdown, Damper Testing
 - d. Elevator Recall
 - e. Fire shutter/door.

5. Electronic copies of all reports shall be submitted to the EH&S Fire & Life Safety Supervisor at mwoods@mdanderson.org. Invoices will not be approved for payment until the report is delivered.

Attachments:

Appendix 1 **Fire Alarm Devices & Equipment Count**

Appendix 2 - **Fire Alarm Systems Batteries Count**

Sample Reports