



**U.S. DEPARTMENT OF STATE  
OBO FIRE PROTECTION DIVISION  
STATEMENT OF WORK/SPECIFICATIONS**

**DATE:**

**PROJECT:**

Phase 1 & Phase 2, - Luanda, Angola

**SERVICES:**

Kitchen Hood Fire Suppression System

**1. BACKGROUND AND PURPOSE**

- a. The U.S. EMBASSY Luanda , Angola and Overseas Buildings Operations (OBO) Fire Protection Division has a requirement to survey the existing hood system in Phase 1 and to fix and modify the current Ansul R-102 Fire Suppression System for the existing kitchen hood system in Phase 2. This requires a qualified technician by Ansul to perform the survey and then make modifications according to US standard mechanical industry practices and Ansul standards/requirements.

**2. GENERAL REQUIREMENTS**

- a. The Contractor shall provide personnel, material, equipment, and supervision to complete the technical requirements in this Statement of Work. The Contractor shall be responsible for labor, equipment and shall follow security and safety directives as explained by the U.S. Embassy Contracting Office and RSO.
- b. The Contractor shall have limited access into the structures and outside the areas designated for the project except with permission by the Embassy Contracting Officer and RSO. The Contractor shall address the impact of the consequent disruption and provide for a continuing level of operation of the Chancery functions caused by the proposed work.

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- c. Design and Application

The restaurant/kitchen fire suppression system shall be designed to provide fire protection for restaurant/kitchen cooking appliances, hoods, and ducts. It shall be a pre-engineered group of mechanical and electrical components for installation by an authorized distributor. The basic system shall consist of an automan regulated release assembly, which includes a regulated release mechanism and a liquid agent storage tank housed within a single enclosure. Nozzles, detectors, cartridges, liquid agent, fusible

links, pulley tees, and pulley elbows are supplied in separate packages in the quantities needed for each fire suppression system. If existing install is missing items noted in "C" it shall be noted upon survey report and priced.

The system shall provide automatic actuation; or it can be actuated manually through a remote manual pull station. The gas or electric supply to all protected appliances will be immediately shut off upon actuation of the system, using appropriate gas shut off or electric shut down devices. The unit shall also include electrical contacts, so the system can be monitored by the building main fire alarm panel upon activation of this unit showing an alarm condition. Upon activation it shall also show the location of the alarm condition on the fire alarm control panel (FACP). All FACP work will be done by OPS/FIR/FPS.

Additional equipment includes: remote manual pull station, mechanical and electrical gas valves, switches, and electrical switches for automatic equipment and gas line shut off. A set of contacts shall be supplied for fire alarm notification for current FACP panel. Once activated it shall indicate an alarm condition.

The system suppresses fire by spraying the plenum area; the filters, cooking surfaces, and the exhaust duct work system with a predetermined flow rate of low pH liquid fire suppressant. When the liquid agent is discharged onto a cooking appliance fire, it cools the grease surface, and reacts with the hot grease forming a layer of soap like foam on the surface of the fat. This layer acts as insulation between the hot grease and the atmosphere, thus helping to prevent the escape of combustible vapors.

Exhaust fans in the ventilating system should be left on. The forced draft of these fans assists the movement of the liquid agent through the ventilating system, thus aiding in the fire suppression process. These fans also provide a cooling effect in the plenum and duct after the fire suppression system has been discharged. The system shall be UL listed with or without fan operation. (Not part of this scope)

It is also required that make up of supply air fans be shut down upon system actuation. Shutdown of fuel and power to all appliances located under protected ventilating equipment is required upon system actuation. (Not part of this scope)

It will also be required that the installing contractor furnish training and instruction to the local staff on proper operation and maintenance of all functions of the newly installed systems. The installing contractor will also be required to furnish all installation manuals and maintenance manuals upon completion of the modified units.

### **3. SCOPE OF WORK – PHASE 1 – SURVEY ONLY**

The contractor is to provide a price to survey the existing hood system installation to incorporate the following:

1 Person - Two (2) days travel – One (1) day at Embassy for survey. Break down/itemized cost is required.

1. Air fare to Luanda
2. Hotel
3. Cabs
4. Official business calls that pertain to this survey. The only personal calls that will be approved are for family emergencies.
5. Meals and expenses
6. Visa cost if required
7. Custom fees if applies
8. If any other cost is needed it is to be listed in cost estimate.

The Contractor shall be required to prepare estimates (within 15 days), bill of materials, quality control schedules, and construction costs to incorporate the following:

1. Manual Pull station/apertures
2. Shunt trip via cable assembly to all cooking appliances/cooking surfaces that are supplied by electric of any type gas or propane. If cooking equipment is electric then it will require proper shunt trip electric switches.
3. Alarm Contacts
4. New fusible links
5. New nozzles as dictated by Ansul.
6. New R-102 Liquid Extinguishing Agent
7. New blow off caps/plus spares
8. New lock bar
9. New set bar
10. Include pricing for additional nozzle if hood is not properly protected.
11. New cabling
12. New hood “Quick Seal Adapters”/”Compression seal Adapters “if needed.
13. New Gas Cartridges
14. New burst disc
15. Check proper placement of all existing nozzles.

If other items/apertures are needed it is to be noted in report and priced.

16. Due to the nature of the use of the hood system after hours work might be required

#### **4. SCOPE OF WORK PHASE 2 – MODIFY /INSTALL**

1. Provide services to install/modify the current hood system fire suppression system.
2. Provide all materials needed to bring system up to current Ansul standards.
3. Procure and ship all needed materials and aperture to project work site.
4. Provide all needed tools to make modifications.
5. Provide cost as noted in Phase 1 to accomplish modifications to existing for hood for Phase 2.
6. Provide estimated labor and manpower
7. All work to meet Ansul R-102 Design and Installation
8. All work to meet NFPA 17A
9. Fill out all acceptance test report per NFPA 17A - See attachment.
10. Exhaust air and fresh air are not part of this scope of work.
11. All new work to meet specifications incorporated into this SOW.
12. All items shall be Ansul R-102 system components per standard UL 300 listed.
13. Provide training to Post personnel upon completion and testing of system.
14. Install all new shunt trip devices to all units and complete
15. Provide FACP contacts - To be wire to FACP by others.
16. Attached to this SOW are specifications to use for general guide lines.

#### **5. CONTRACT ADMINISTRATION**

- a. The OBO does not make representations or warranties of whatsoever kind or nature, either expressed or implied, as to the quality, level of completion, accuracy, extent of compliance with the standards, codes and requirements described or referred to in this SOW, or the extent of coordination between or among the documents provided to the Contractor.
- b. Neither the FM nor OBO's review, approval, or acceptance of, nor payment for the services required under this contract shall be construed to operate as a waiver of any rights under this contract or any cause of action against the Contractor arising out of the performance of this contract.
- c. The OBO has the right to inspect and test all services called for by the contract, to the extent practicable at all times and places during the term of the contract. The OBO may perform quality assurance inspections [QAI] and to confirm the work is being performed according to the Statement of Work.

- d. New system will be fully tested/witnessed when completed by OBO/OPS/FIR. Contractor is required to do the testing in present of inspector. Sixty days (60) notice is required for notification.
- e. The Contractor shall identify a Project Manager who shall be responsible for the overall management of this Contract. The Project Manager will be approved by the Contracting Officer/Post.
- f. The Contractor is responsible for safety and shall comply with all local labor laws, regulations, customs and practices pertaining to labor, safety and similar matters. The Contractor shall promptly report all accidents resulting in lost time, disabling, or fatal injuries to the Contracting Officer's at Post (COR).

## **6. RESPONSIBILITY OF THE CONTRACTOR**

- a. The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all construction and other services furnished under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its construction and other services.

## **7. CONSTRUCTION REQUIREMENTS**

- a. The Contractor shall be responsible for all required materials, equipment and personnel to manage, administer, and supervise this project. All workmanship shall be of good quality and performed in a skillful manner as determined of Post Contractor Officer.
- b. The Contractor shall have limited access to or be admitted into any building on the compound outside the areas designated for the project except with permission by Contracting Officer and RSO.
- c. The Contractor will be permitted to use the area within the compound for operation of his construction equipment and temporary facilities. The Contractor is responsible for obtaining any additional off compound storage areas if required.
- d. The Contractor shall be responsible for connection of temporary utilities to existing utilities including water and power. All temporary connections to local water and power shall be coordinated with the Post and FM.

**8. DELIVERABLE SCHEDULE**

- a. The Contractor shall commence work under this contract promptly, execute the work diligently, and achieve final completion and acceptance of the hood fire suppression system modification including final cleanup of the premises within the contract period specified.
- b. Project Completion: Furnish surplus materials, one copy of maintenance and operating information, and catalog cuts of all items installed.

**9. SECURITY**

- a. This is a non-classified project. The work to be performed under this contract requires that the Contractor, to submit all personnel information for each employee to be working at Embassy for review by the Embassy Contracting Officer and RSO. Information submitted by the Contractor will not be disclosed beyond the Embassy. Post will notify contractor for require info.
- b. No work is to be started until Contractor office and the RSO give total approval.

END OF STATEMENT OF WORK

## SPECIFICATIONS FOR ANSUL R-102 FIRE SUPPRESSION SYSTEMS

### PART 1 - GENERAL

#### 1.01 References:

- A. Underwriters Laboratories Inc (UL)  
UL Standard 1254  
UL Standard 300
- B. National Fire Protection Association (NFPA)  
NFPA 96  
NFPA 17A  
NFPA 72
- C. Underwriters Laborites of Canada (ULC)

#### 1.2 Submittals:

- A. Submit two sets of manufactures data sheets. - Required
- B. Submit two sets of piping design drawings. – NOT required
- C. Submit two sets of design drawings showing hood details and new Ansul unit. NOT required

#### 1.3 System Description:

- A. The system shall be an automatic fire suppression system using a wet chemical agent for grease related fires.
- B. The system shall be capable of suppression fires in the following areas associated with cooking equipment, ventilating equipment including hoods, ducts plenums and filters, fryers, griddles, and range tops, upright, natural charcoal, or chain-type broilers, electric, lava rock, mesquite or gas-radiant char broilers.
- C. The system shall be capable of suppression fires in the following areas associated with cooking equipment, ventilating equipment including hoods; ducts, plenums, and filters; fryers; griddles; and range tops; upright, natural charcoal, or chain-type boilers; electric, lava rock, mesquite or gas-radiant char-broilers.
- D. The system shall be the engineered type having minimum and maximum guidelines listed by the manufacture and listed by Underwriters Laboratories, Inc. (UL).
- E. The systems shall be installed and serviced by personnel trained by the manufacture.
- F. The system shall be capable of protecting cooking appliances by utilizing either dedicated appliance protection and/or overlapping appliance protection.

#### 1.4 Quality Control:

- A. Manufacture: The R-102 Hood Fire Suppression system shall be manufactured by a company with at least thirty years' experience in

the design and manufacture of engineer fire suppression systems. The manufacture shall be ISO 9001 registered.

- B. Certifications: The wet agent shall be specially formulated, aqueous solution of organic salts with a PH range between 7.7 – 8.7, designed for flame knockdown and foam securement of grease-related fires.

1.5 Warranty, Disclaimer, and Limitations:

- A. The pre-engineer fire suppression system components shall be warranted for 5 years from date of delivery and installation against defects in workmanship and materials.

1.6 Delivery:

- A. Packaging: All system components shall be securely packed to provide protection during shipment.

1.7 Environmental Conditions:

- A. The R-102 system shall be capable of operating in a temperature range of 32 F to 130 F (0 C to 54 C).

## **PART 2 – PRODUCTS**

2.1 Manufacture:

- A. Ansul International

2.2 Components:

- A. The basic system shall consist of an ANSUL AUTOMAN regulated release assembly which includes a regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank housed within a single stainless steel enclosure. Nozzles blow off caps, detectors, cartridges, agent, fusible links, and pulley elbows shall be supplied in separate packages in the quantities needed for fire suppression system arrangements. Additional equipment shall include remote manual pull station, mechanical and electrical gas valves, pressure switches, alarm switches, and electrical switches for automatic equipment gas line shut-off.
- B. Wet Chemical Agent: The extinguishing agent shall be a specially formulated, aqueous solution of organic salts with PH range between 7.8 – 8.2, designed for flame knockdown and foam securement of grease related fires.
- C. Agent Tank: The agent tank shall be installed in a stainless steel enclosure or wall bracket. The tank shall be constructed of stainless steel. Tanks shall be available in two (2) sizes; 1.5 gallons (5.7 L) and 3.0 gallons (11.4L). The tanks shall have a working pressure of 110 psi (7.6 bar), a test pressure of 330 psi (22.8 bar), and a minimum

burst pressure of 330 psi (41.4 bar). The tank shall include an adaptor/tube assembly containing a burst disc union.

- D. Regulated Release Mechanism: The regulated release mechanism shall be a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks depending on the capacity of the gas cartridge used. It shall contain a factory installed regulator deadest at 110 psi (7.6 bar) with an external relief of approximately 180 psi (12.4 bar)

It shall have the following actuation capabilities; automatic actuation by a fusible link detection system and a remote manual actuation by a mechanical pull station.

The regulated release mechanism shall contain a release assembly, regulator, expellant gas hose and agent storage tank housed in a stainless enclosure with cover. The cover shall contain an opening for a visual indicator.

It shall be compatible with mechanical gas valve-shut off devices; or when equipped with a field or factory-installed switch. It shall be compatible with electric gas line or appliance shut-off devices.

- E. Regulated Actuator Assembly; when more than two agent tanks are required, the regulated actuator shall be available to provide expellant gas for additional tanks. It shall be connected to the cartridge receiver outlet if the regulated release mechanism providing simultaneous agent discharge. The regulator shall be deadest at 110 psi (7.6 bars) with an external relief of approximately 180 psi (12.4 bars). The regulated actuator assembly shall contain regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure shall contain knockouts to permit installation of the expellant gas line.
- F. Discharge Nozzles; each discharge nozzle shall be tested and listed with the R-0102 system for a specific application. Nozzle tips shall be stamped with a flow number designation (1/2, 1, 2, and 3). Each nozzle shall have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease buildup.
- G. Distribution Piping: Distribution piping shall be Schedule 40 black iron, chrome plated piping or stainless steel piping conforming to ASTM A120, A53 or A106. No galvanized piping, nor fittings are to be used. Fittings are to be malleable.
- H. Detectors; the detectors shall be the fusible link type designed to separate at a specific tempter.

- I. Cartridges; the cartridge shall be a sealed steel pressure vessel containing either carbon dioxide or nitrogen gas. The cartridge seal shall be designed to be punctured by the releasing agent supplying the required pressure to expel wet chemical agent from the storage tank.
- J. Agent Distribution Hose; Kitchen appliances manufactured with or resting on casters (wheels or rollers), which have the Fire Suppression System hard piped. Shall include a UL Listed agent distribution hose as a component of the suppression system. This shall allow the appliance to be moved for cleaning purposes without disconnecting the appliance fire suppression system. Hose assembly shall include a restraining cable kit to limit the appliance movement within the range (length) of the flexible hose.
- K. Flexible Conduit; The manufacture supplying the Fire Suppression system shall offer flexible conduit as an option to ridged conduit for the installation of pull stations and/or mechanical valves. The flexible conduit shall be UL listed and include all approved components for proper installation
- L. Pull Station Assembly; The Fire suppression system shall include a remote pull station for manual system activation. The pull station shall be designed to include a built-in guard to protect the pull handle. The pull station shall also be designed with a pull station to allow for here finger operation and shall be red in color for quick visibility.

PARTS 3 – Implementation;

- A. The R-102 fire suppression shall be designed, installed, inspected, maintained, and recharged in accordance with the manufactures listed instruction manual.
- B. Training shall be conducted by representative of the manufacture,