

# GENERIC SPECIFICATION

## STOVE TOP AUTOMATIC FIRE SUPPRESSION SYSTEM

### 1.0 SCOPE

1.1 **Scope:** This specification covers the requirement for an automatic stove-top fire suppression device which is capable of detecting, suppressing and preventing reigniting of kitchen stove-top fires, while terminating the basic heat source and sounding an alarm.

2.0 **DESCRIPTION:** The stove-top automatic fire suppression device (referred to as the “system”) described herein provides the capability of detecting, extinguishing and suppressing the reigniting of a cooking fire on a stove-top while performing the ancillary function of terminating the basic heat source (electric or gas) and sounding an audible alarm. The system shall be UL listed and provide documentation that it complies with the USAF protocol 90 second response test. The system shall be designed to operate in the automatic mode.

The system shall consist of the following major components:

<u>ITEM NAME</u>	<u>REQUIREMENTS</u>
Detection Unit	2.2
Extinguishing Unit	2.4
Ancillary Function Mode	2.6
Associated Plumbing	2.7

The system shall be capable to being recharged, reset and returned to service after activation and clean up. This task of returning the system to service shall be accomplished by one (1) semi-skilled laborer in (1) hour or less. In some cases, the extinguishing unit may be considered disposable after activation.

2.1 **Agent requirement:** The agent shall be low PH type, (non-corrosive and non-toxic) having a PH of less than 12.5. If the agent has a PH in excess of 12.5 it must be so listed on the cylinder with instructions in conformance with the (EPA) Environmental Protection Agency hazardous materials sections. According to the EPA all materials having a PH in excess of 12.5 are hazardous materials.

2.2 **Detection Unit:** The detection unit shall be designed to activate the extinguishing unit on detection of a flame other than the normal stove-top gas flame or detection of a

heat level above that is generated by normal cooking activities. The detector itself will normally be a thermal, or fusible link, glass bulb, or a precious metal sensor. However, other activation methods may be incorporated. If electronic detection is used it must be wired into a 110 volt power supply. Power must be transformed to low voltage and must have battery back up. Electronic detectors with batteries alone will not be allowed. Although the simplicity of the system is preferred by having (1) one detector, other methods will be allowed.

- 2.3 **Mounting**: The detection unit shall be mounted within the range hood. Mounting locations will be determined by the manufacturer. However, previous testing has shown that mounting the detection unit directly above and centered between the burners best allows the unit to meet the requirements of 2.2. This area above the stove in the hood is known as the OPTIMUM BTU TRANSFER ZONE.
- 2.4 **Extinguishing Unit**: The extinguishing unit shall be designed to evenly blanket the range top with an extinguishing agent to suppress the fire and prevent reigniting with the heat source off. The unit shall consist of one or more agent containers and one or more nozzles with associated plumbing. The unit shall be designed for installation in the range hood area. A system with simple installation is desired, however, the complexity of the system shall not require more than one hour of installation time by one semi-skilled craftsman. Agent types and amounts will be determined by the manufacturer. Agents must satisfy the requirements of 2.1 and favorable consideration will be given to agent which can be effectively employed in smaller quantities and which does not lead to time consuming and tedious post-activation clean up.
- 2.5 **Compatibility**: The extinguishing unit and components hardware shall be compatible with the agent. The unit shall not generate flying debris and the nozzles shall be such that they provide uniform agent dispersal without imparting a velocity to the agent which causes it to splatter the burning oil and extend the fire beyond the cooking range surface.
- 2.6 **Ancillary Function Module**: This module shall be designed to provide: (a) a gas/electric shut-off to the range surface (b) an audible alarm (c) plug-in parts for central station, automatic dialer, auxiliary alarms and strobe alarms. The purpose is to comply with the (ADA) American Disabilities Act (d) gas range shut-off must be accompanied by additional module to terminate the electric accessory items present on the back of the stove such as clock, timer, temperature, and 110 volt plug. The module shall be self contained, providing all of these functions from a single location. It is preferred that all gas and electric shut-offs be mechanical in function requiring "0" zero electric energy. Other shut-offs will be considered providing they do not hum or buzz and are simultaneous with disposing the fire extinguishing agent. Shut-offs that takes more than (1) one second to shut down will not be considered simultaneous. The system shall cause interruption of the fuel or electric supply to the range, with or without normal electric power. When an electric operated valve is used, the configuration shall be such that the gas supply will not be interrupted in the

event of a brown-out or power failure. Power for electric and gas valves shall be taken from the closest power source. Gas valves that are powered by batteries alone will not be allowed.

- 2.7 Associated plumbing:** All plumbing and valves used to connect the system shall be compatible with the agent and shall be of sufficient size and type so as to not restrict the flow of the agent or cause an excessive pressure drop through the system. If a pressure gas/electric valve is used there must be a filter between the agent container and the operating valve so as to not contaminate the shut-off valve. Additionally, all plumbing and valves (except the system pressure relief valve, if provided) shall have a minimum safe working pressure corresponding to the pressure vessel containing the agent.
- 2.8 Electrical requirements:** The system shall be capable of operating at variable power and cycle settings re: 120 volts 15 amps, 240 volts 50 amps, 50 or 60 cycles.
- 2.9 Documentation:** The system shall be supplied with an operation and maintenance procedures manual, which give clear and concise instructions to those personnel using the system on the proper installation, operation and maintenance of the system to satisfy its intended use. The manual shall include sufficient drawings to permit semi-skilled personnel to install the system and to perform all maintenance and repair.
- 3.0 System leakage:** The system shall not leak agent.
- 3.1 Warranty:** The manufacturer/supplier will provide a minimum 12 year UL cylinder service life on the fire extinguishing agent cylinder. The system cylinder must be exempt from internal inspection at the end of 6 years of usage. If a UL listing can not be given to support compliance of the 12 year cylinder service life the cylinders must be internally inspected in accordance to the covenants of NFPA chapter 10. The manufacturer/supplier who does not comply can agree in separate letter form that they will provide the inspection service and certification every 6 years at no cost to the end user, owner or project manager having jurisdiction.
- 3.2 Fire replacement of cylinder and fuse link:** When This Generic Specification & Paragraph 3.2 is utilized to purchase automatic fire suppression systems, the system manufacture contractor must adhere & abide by the following: All systems actuated during a fire will be replaced at no cost to the owner operator for any system replacement parts necessary for 12 years. Providing the end user, owner, Fire Chief or project manager having jurisdiction submit a “WRITTEN REPORT” reporting the following: The circumstances of the fire stating who, what, where, when and why within 30 days of the fire incident to the manufacturer/supplier. The manufacturer/supplier will agree to have a surplus of extra agent, cylinder and fusible links, in the amount of 4% more than the total amount of the contract. The extra surplus fire suppression unit inventory will be on hand at end users supply depot, warehouse or designated location for the use as replacement systems to draw against at no charge to the end user, owner, Fire Chief or project manager having

**jurisdiction. When 12 fire reports have been received and 12 used cylinders and fusible links are received by the manufacturer/supplier, they will be replaced within 30 days at no cost to the Facility end users FOB place of manufacturer.**