



**SECTION 1 - GENERAL CONDITIONS**

**I. SCOPE:**

This specification outlines the requirements for a "Total Flood" ProInert™ fire suppression system utilizing IG-55 as the fire extinguishing agent and with a SHP PRO® conventional detection and control system. The work described in this specification includes all engineering, labor, materials, equipment and services necessary, and required, to complete and test the suppression and detection system.

**II. APPLICABLE STANDARDS AND PUBLICATIONS:**

The design, equipment, installation, testing and maintenance of the System shall be in compliance and accordance with the applicable requirements set forth in the latest edition of the following codes, standards, and third party approval agencies:

- 1) NFPA No. 2001 - Clean Agent Fire Extinguishing Systems
- 2) NFPA No. 70 - National Electrical Code
- 3) NFPA No. 72 - National Fire Alarm Code
- 4) FM Approvals (F.M.)
- 5) Underwriters Laboratories (UL)
- 6) Requirements of the Authority Having Jurisdiction (AHJ)

The standards listed, as well as all other applicable codes and standards shall be used as "minimum" design standards. Also to be considered are the requirements of the "Authority Having Jurisdiction" and good engineering practices.

**III. REQUIREMENTS:**

The ProInert system installation shall be made in accordance with the drawings, specifications and applicable standards. Should a conflict occur between the drawings and specifications, the specifications shall prevail.

**IV. EXCLUSIONS:**

The work listed below shall be provided by others, or under other sections of this specification:

- 1) 120 VAC or 240 VAC power supply to the system control panel.
- 2) Interlock wiring and conduit for shutdown of HVAC, dampers and/or electric power supplies, relays or shunt trip breakers.
- 3) Connection to local/remote fire alarm systems, listed central alarm station(s).

**V. QUALITY ASSURANCE:**

**A) MANUFACTURER:**

- 1) The manufacturer of the system hardware and detection components shall have a minimum of 10 years experience in the design and manufacture of similar types of suppression systems and who refer to similar installations providing satisfactory service.
- 2) The name of the manufacturer, part numbers and serial numbers shall appear on all major components.
- 3) All devices, components and equipment shall be products provided by the same manufacturer.
- 4) All devices, components and equipment shall be new, standard products of the manufacturer's latest design and suitable to perform the functions intended.
- 5) All devices and equipment shall be U.L listed or FM approved.
- 6) Locks for all cabinets shall be keyed alike.



**B) INSTALLER:**

- 1) The installing contractor shall be trained by the supplier to design, install, test and maintain a system.
- 2) When possible, the installing contractor shall employ a NICET certified special hazard designer, level 2 or above, who will be responsible for this project.
- 3) The installing contractor shall be an experienced firm regularly engaged in the installation of automatic, or similar, fire suppression systems in strict accordance with all applicable standards.
- 4) The installing contractor must have a minimum of five (5) years experience in the design, installation and testing of, or similar, fire suppression systems. A list of systems of a similar nature and scope shall be provided on request.
- 5) The installing contractor shall show evidence that his company carries a minimum \$2,000,000.00 liability and completed operations insurance policy. These limits shall supersede limits required in the general conditions of the specifications.
- 6) The installing contractor shall maintain, or have access to, a recharging station. The installing contractor shall provide proof of his ability to recharge the largest system within 72 hours after a discharge.
- 7) The installing contractor shall be an authorized stocking distributor of the system equipment so that immediate replacement parts are available from inventory.
- 8) The installing contractor shall show proof of emergency service available on a twenty-four hour, seven-day-a-week basis.

**C) SUBMITTALS:**

- 1) The installing contractor shall submit the following design information and drawings for approval prior to starting work on this project:
  - a) Field installation layout drawings having a scale of not less than 1/8"=1'-0" (1:100m) detailing the location of all agent storage tanks, pipe runs including pipe sizes and lengths, control panel(s), detectors, manual pull stations, abort stations, audible and visual alarms, etc.
  - b) Auxiliary details and information such as maintenance panels, door holders, special sealing requirements and equipment shutdowns.
  - c) Separate layouts, or drawings, shall be provided for each level, ( i.e.; room, underfloor, and above ceiling) and for mechanical and electrical work.
  - d) A separate layout or drawing, shall show isometric details of agent storage cylinders, mounting details and proposed pipe runs and sizes.
  - e) Electrical layout drawings shall show the location of all devices and include point-to-point conduit runs and a description of the method(s) used for detector mounting.
  - f) Provide an internal control panel wiring diagram which shall include power supply requirements and field wiring termination points.
  - g) Graphic Annunciator wiring schematics and dimensioned display panel illustration shall be provided. (optional device)
  - h) Complete hydraulic flow calculations, from FIKE's UL/FM Approved Prolnert Flow Calculation Program, shall be provided for all engineered systems. The individual sections of pipe to be used, as shown on the isometrics, must be identified and included in the calculation. Total agent discharge time must be shown and detailed by hazard. Calculation shall also include relief / vent area required to avoid structural damage to the hazard enclosure, equipment and building. The pressure relief / vent(s) must be installed prior to the Prolnert system being put into operation. The pressure relief / vent(s) are directly venting outdoors or a substantially larger (100 times) volume room. If ducting is used, additional pressure relief / vent area may be required.



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- i) Provide calculations for the battery stand-by power supply taking into consideration the power requirements of all alarms, initiating devices and auxiliary components under full load conditions.
  - j) A complete sequence of operation shall be submitted detailing all alarm devices, shutdown functions, remote signaling, damper operation, time delay and agent discharge for each zone or system.
- 2) Submit drawings, calculations and system component data sheets for approval to the local Fire Prevention Agency, owners Insurance Underwriter, and all other Authorities Having Jurisdiction before starting installation. Submit approved plans to the Architect/Engineer for record.

**SECTION 2 – SYSTEM REQUIREMENTS**

**I. SYSTEM DESCRIPTION AND OPERATION:**

- A) The system shall be a Total Flood ProInert Fire Extinguishing System utilizing IG-55 fire extinguishing agent. IG-55 is an inert gas mixture consisting nominally of 50% argon and 50% nitrogen. System shall be supplied by Fike through an authorized and trained sales outlet.
- B) The PROINERT system shall provide a minimum design concentration of 34.2%, by volume, in all areas and/or protected spaces, at the minimum anticipated temperature within the protected area. Per NFPA 2001, the system design shall not exceed a maximum exposure limit concentration level of 43%, by volume, unless provisions for room evacuation, before agent release, are provided. All personnel should be able to leave the protected space prior to the discharge or at least within 5 minutes of the commencement of discharge.
- C) The system shall be complete in all ways. It shall include all mechanical and electrical installation, all detection and control equipment, agent storage cylinders, IG-55 agent, system actuation equipment, discharge nozzles, pipe and fittings, manual release and abort stations, audible and visual alarm devices, auxiliary devices and controls, shutdowns, alarm interface, caution/ advisory signs, functional checkout and testing, training and all other operations necessary for a functional U.L. Listed and/or F.M. Approved PROINERT system.
- D) Provide two (2) inspections during the first year of service. Inspections shall be made at 6 month intervals commencing when the system is first placed into normal service.
- E) The general contractor shall be responsible for sealing and securing the protected spaces against agent loss and/or leakage during the 10 minute “hold” period.
- F) The system shall be actuated by a minimum of two (2) smoke detectors (photoelectric, ionization, air sampling) at a maximum spacing of 250 sq. ft. (23.2 sq. meter) per detector, in both the room, underfloor and above ceiling spaces; or a single heat detector installed based upon the prescribed spacing outlined in NFPA 72. If using photoelectric and ionization smoke detectors, they shall be configured in a cross zone format.
- G) Detectors shall be wired in Sequential Detection method of operation, standard Cross-Zoned detection, or single detector release. No other detection / wiring arrangements will be acceptable.
- H) Automatic operation of each protected area shall be as follows:
  - 1) Actuation of one (1) detector, within the system, shall:
    - a) Illuminate the “ALARM” LED on the control panel face.
    - b) Energize the audible notification appliances within the protected space with a unique pattern to indicate a first alarm condition
    - c) Transfer sets of 5 Amp rated auxiliary contacts which can perform auxiliary system functions such as:
      - 1) Operate door holder/closures on access doors.
      - 2) Transmit a signal to a fire alarm system.
      - 3) Shutdown HVAC equipment.

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- d) Light an individual LED on an optional graphic annunciator.
- 2) Actuation of a 2<sup>nd</sup> detector, within the system, shall:
  - a) Illuminate the “PRE-DISCHARGE” LED on the control panel face.
  - b) Energize the audible notification appliances within the protected space with a unique pattern to indicate a second alarm (predischARGE) condition.
  - c) Shut down the HVAC system and/or close dampers.
  - d) Start time-delay sequence (not to exceed 60 seconds).
  - e) System abort sequence is enabled at this time.
  - f) Light an individual LED on an optional graphic annunciator.
- 3) After completion of the time-delay sequence, the PROINERT system shall activate and the following shall occur:
  - a) Illuminate a “RELEASE” LED on the control panel face.
  - b) Energize the audible notification appliances within the protected space with a continuous on pattern to indicate a release condition.
  - c) Shutdown of all power to high-voltage equipment
  - d) Energize a visual indicator(s) outside the hazard in which the discharge occurred.
  - e) Energize a “System Fired” audible device. (Optional)
- 4) The system shall be capable of being actuated by manual discharge devices located at each hazard exit. -Operation of a manual device shall duplicate the sequence description above except that the time delay and abort functions SHALL be bypassed. The manual discharge station shall be of the electrical actuation type and shall be supervised at the main control panel.
- I) Manual actuation of the system shall be accomplished by:
  - 1) Operation of the Manual Release points connected to the control panel. This then initiates the fullshutdown sequence. The system shall be capable of providing a delay upon actuation of a Manual Release (not to exceed 30 seconds).
  - 2) Activating the manual push button on the ProInert Solenoid Actuator. Operation of the mechanical manual push button will immediately start the ProInert Fire Extinguishing System discharge, bypassing all other sequences described above.
  - 3) A discharge pressure switch mounted on the manifold shall be configured as a Manual Release without countdown, in order to indicate the status of the system, both on and off premises.

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**II. MATERIALS AND EQUIPMENT:**

**A) GENERAL REQUIREMENTS:**

The ProInert system materials and equipment shall be standard products of the supplier's latest design and suitable to perform the functions intended. When one or more pieces of equipment must perform the same function(s), they shall be duplicates produced by one manufacturer.

- 1) All devices and equipment shall be U.L. Listed and/or F.M. Approved.

**B) PROINERT AGENT STORAGE AND DISTRIBUTION:**

Each system shall have its own supply of agent.

- 1) The system design can be modular or central storage.
- 2) Systems shall be designed in accordance with the manufacturer's guidelines.
- 3) Agent supply can be located within the hazard area, or as far away from as possible, as long as the



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system is designed within piping limitations set by U.L. and/or F.M. approval testing.

- 4) The IG-55 agent shall be stored in FIKE P/N IG71-090 Series Agent Storage Cylinders. Cylinders shall be pressurized to an operating pressure of 2,900 psi @ 60° F (200 bar @ 15.6° C). Cylinders shall be of high-strength alloy steel construction and conform to NFPA 2001. Each cylinder shall be equipped with a pressure-regulating outlet valve designed to provide an outlet pressure of 645 psi (44.5 bar) and a free flow area of 12 mm in diameter.
- 5) Cylinders shall be pneumatically actuated from the nitrogen pressure provided from FIKE P/N 70-202 Master Actuator Assembly or FIKE P/N 70-229 Slave Actuator Assembly, both actuator assemblies shall be capable of actuating up to 60 cylinders and/or additional actuator assemblies.
- 6) Each cylinder shall have a pressure gauge and low pressure switch to provide visual and electrical supervision of the cylinder pressure. The low pressure switch shall be wired to the control panel to provide an audible and visual “Supervisory” indication in the event the cylinder pressure drops below 2,565 psi (177 bar). The pressure gauge shall be color coded to provide an easy, visual indication of cylinder pressure.
- 7) Each cylinder shall be furnished with an anti-recoil device installed in the discharge valve outlet to ensure the contents of the pressurized cylinder will be released in a slow, controlled, rate of discharge if the valve is opened during the shipping and handling process.
- 8) Each cylinder shall have a pressure relief provision that automatically operated when the internal temperature exceed 150° F (66° C).
- 9) Engineered discharge nozzles shall be provided, within the manufacturer’s guidelines, to distribute the IG-55 agent throughout the protected spaces. The nozzles shall be FIKE P/N IG71-XXX-XXXX designed to provide proper agent quantity and distribution. Nozzles shall be available in NPT sizes 1/2” – 1 1/2” (20mm – 40mm) and be available in 360° distribution patterns.
- 9) Distribution piping, and fittings, shall be installed in accordance with the manufacturer’s requirements, NFPA 2001 and approved piping standards and guidelines. All distribution piping shall be installed by qualified individuals using good, accepted practices and quality procedures. All piping shall be adequately supported and anchored at all directional changes and nozzle locations.
  - a) All piping shall be reamed, blown clear and swabbed with suitable solvents to remove burrs, mill varnish and cutting oils before assembly.
  - b) All pipe threads shall be sealed with Teflon tape pipe sealant applied to the male thread ONLY.

**C) CONTROL PANEL**

- 1) The control panel shall be a SHP PRO® Control panel, P/N 10-063-1-C-P, manufactured by FIKE , Blue Springs, MO.
- 2) The SHP PRO Control System, and its components, shall be UL listed and FM approved for clean agent / inert gas releasing service and be suitable for Deluge and Pre-action sprinkler service.
- 3) The SHP PRO Control System shall perform all functions necessary to operate the system detection, actuation and auxiliary functions, as outlined.
- 4) The SHP PRO Control System shall be capable of providing 7 Ah to 40 Ah battery standby power..
- 5) The SHP PRO Control System shall be microprocessor based with hardware and software integration designed to guarantee reliability.
- 6) The SHP PRO Control System shall support Cross Zone, Sequential, Single Detector Release and Manual Release detection/actuation methods.

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- 7) The SHP PRO Control System shall provide the following capabilities and functions:
- a) Three (3) Class B (Style Y), notification appliance circuits rated for 2.0 amps @ 24 VDC.
  - b) Up to two (2) Style B initiating device circuits capable of sequential alarm, cross-zone, or single detector release operation with an overall system capacity of 50 detectors maximum..
  - c) Three (3) Style B initiating device circuits capable of monitoring closed contact devices.
  - d) Optional Class A module that converts all five input circuits to Style D..
  - e) Optional Class A module that converts all five output circuits to Style Z (3 NAC, 2 Releasing)
  - f) Ten (10) Status LEDs plus alpha-numeric display for troubleshooting: AC normal; alarm; pre-discharge;release;supervisory;trouble; panel silenced;abort; release disabled; and ground fault.
  - g) Programmable pre-discharge / discharge timers.
  - h) Resettable and continuous auxiliary output power.
  - i) Five (5) optional Abort types..
  - j) Intelligent Transistor protection to prevent noise spikes and microprocessor failure from inadvertently activating release circuits.
  - k) A dedicated disarm switch for outputs.
  - l) Dedicated alarm, supervisory and trouble relay contacts.
  - m) Three (3) Form "C" relays, rated at 2 amps, are provided on the SHP PRO panel board. Installation of up to two (2) optional CRM4 Relay Module (P/N 10-2204) will provide up to eight (8) additional 2 amp relays..
  - n) Multiple input power source – 120 VAC or 240 VAC.
  - o) 4.0 amps @ 24 VDC power supply to operate high current draw horns and strobes.
  - p) Available in either Red or Gray finish.

**D) DETECTOR BASES:**

The detector bases shall be selected according to their operational characteristics and size of base.

- 1) 430 ohm bases are used to provide Sequential or Cross Zone detection on the SHP PRO initiating circuits. The bases shall be Fike P/N 67-1034 (6"/15cm) base, or P/N 67-1036 (4"/10cm) base..
- 2) 220 ohm bases are used to provide Cross Zone or Single Detector Release detection on the SHP PRO initiating circuits. The bases shall be Fike P/N 67-1035 (6"/15cm) base, or P/N 67-1037 (4"/10cm) base.
- 3) When using the SHP PRO in conjunction with a Graphic Annunciator panel, the following old style bases must be used.
  - a) Fike P/N 67-1034 (6"/15 cm) 430 ohm base.
  - b) Fike P/N 67-1036 (4"/10 cm) 430 ohm base.
  - c) Fike P/N 67-1035 (6"/15 cm) 220 ohm base.
  - d) Fike P/N 67-1037 (4"/10 cm) 220 ohm base.

\*Additional bases are available from Fike Corporation



**E) MANUAL RELEASE (Electric):**

The electric manual release switch shall be a dual action device which provides a means of manually discharging the ProInert system when used in conjunction with the FIKE SHP PRO Control System.

- 1) The Manual Release switch shall be a FIKE P/N 10-1638 or a Manual Pull station, P/N 02-3710.
- 2) The Manual Release switch or Manual Pull station shall be a dual action device requiring two distinct operations to initiate a system actuation.
- 3) Manual actuation shall bypass the time delay and abort functions, shall cause the system to discharge and shall cause all release and shutdown devices to operate in the same manner as if the system had operated automatically.
- 4) A Manual Release or Manual Pull switch shall be located at each exit from the protected hazard and shall have an advisory sign, FIKE P/N 02-10312, provided at each location.

**F) ABORT STATION (Optional):**

The optional Abort Station shall be the "Dead Man" type and shall be located next to each manual switch.

- 1) "Locking" or "Keyed" abort stations **shall not** be permitted.
- 2) The Abort Station shall be a FIKE P/N 10-1639.
- 3) The Abort Station shall be supervised and shall indicate a trouble condition at the SHP PRO Control Panel, if depressed, and no alarm condition exists.
- 4) The (optional) Abort Station shall be located adjacent to each manual station and can be furnished in combination with a Manual Release Switch or in combination with a Manual Release Switch and (optional) Digital Countdown Timer (FIKE P/N 20-046).

**G) AUDIBLE and VISUAL ALARMS:**

Alarm audible and visual signal devices shall operate from the SHP PRO Control Panel.

- 1) The Alarm Bell, Alarm Horn and Horn/Strobe devices shall be FIKE P/N's 20-XXX, or equal in quality, performance and features. A label shall be attached to the strobe lens when required.
- 2) The visual alarm unit shall be a FIKE P/N 20-XXX Vertical Strobe device, or equal in quality, performance and features. A label shall be attached to the strobe lens when required.
- 3) A Strobe device shall be placed outside, and above, each exit door from the protected space. Provide an advisory sign, FIKE P/N 02-10313, at each light location.

**H) CAUTION and ADVISORY SIGNS:**

Provide signs, as required, to comply with NFPA 2001 and the recommendations of the PROINERT equipment supplier:

- 1) Entrance sign: (1) required at each entrance to a protected space. (FIKE P/N 02-10314)
- 2) Manual Discharge sign: (1) required at each manual discharge station. (FIKE P/N 02-10312)
- 3) Flashing Light sign: (1) required at each flashing light over each exit from a protected space. (FIKE P/N 02-10309 or 02-10313)

**I) AUXILIARY PANELS: (Optional)**

- 1) A Graphic Annunciator panel will be mounted adjacent to the SHP PRO control panel. The graphic annunciator shall show a scale layout of the protected area(s) and have indicator LEDs to locate each system detector and/or other system components. The panel shall have a lamp test switch located on the panel face. Other panel options shall be available. Scale shall not be less than 1/8" = 1'-0" (1:100 m).



**J) SYSTEM and CONTROL WIRING:**

- 1) All system wiring shall be furnished and installed by the contractor.
- 2) All wiring shall be installed in electrical metallic tubing (EMT), or conduit, and must be installed and kept separate from all other building wiring.
- 3) All system components shall be securely supported independent of the wiring. Runs of conduit and wiring shall be straight, neatly arranged, properly supported, installed parallel and perpendicular to walls and partitions.
- 4) The sizes of the conductors shall be those specified by the manufacturer. Color coded wire shall be used. All wires shall be tagged at all junction points and shall be free from shorts, earth connections (unless so noted on the system drawings), and crosses between conductors. Final terminations between the SHP PRO control panel and the system field wiring shall be made under the direct supervision of a factory trained representative.
- 5) All wiring shall be installed by qualified individuals, in a neat and workmanlike manner, to conform to the National Electrical Code, Article 725, and Article 760, except as otherwise permitted for limited energy circuits, as described in NFPA 72 -2002 or current edition. Wiring installation shall meet all local, state, province and/or country codes.
- 6) The complete system electrical installation, and all auxiliary components, shall be connected to earth ground in accordance with the National Electrical Code.

**K) SYSTEM INSPECTION and CHECKOUT:**

After the system installation has been completed, the entire system shall be checked out, inspected and functionally tested by qualified, trained personnel, in accordance with the manufacturer's recommended procedures and NFPA standards.

- 1) All cylinders and distribution piping shall be checked for proper mounting and installation.
- 2) All electrical wiring shall be tested for proper connection, continuity and resistance to earth.
- 3) The complete system shall be functionally tested, in the presence of the owner or his representative, and all functions, including system and equipment interlocks, must be operational at least five (5) days prior to the final acceptance tests.
  - a) Each detector shall be tested in accordance with the manufacturers recommended procedures, and test values recorded.
  - b) All system and equipment interlocks, such as door release devices, audible and visual devices, equipment shutdowns, local and remote alarms, etc. shall function as required and designed.
  - c) Each SHP PRO control panel circuit shall be tested for trouble by inducing a trouble condition into the system.

**L) TRAINING REQUIREMENTS:**

Prior to final acceptance, the installing contractor shall provide operational training to each shift of the owners personnel. Each training session shall include system SHP PRO Control Panel operation, manual and (optional) abort functions, trouble procedures, supervisory procedures, auxiliary functions and emergency procedures.

**M) OPERATION and MAINTENANCE:**

Prior to final acceptance, the installing contractor shall provide complete operation and maintenance instruction manuals, four (4) copies for each system, to the owner. All aspects of system operation and maintenance shall be detailed, including piping isometrics, wiring diagrams of all circuits, a written description of the system design, sequence of operation and drawing(s) illustrating control logic and equipment used in the system. Checklists and procedures for emergency situations, troubleshooting techniques, maintenance operations and procedures shall be included in the manual.





**N) AS-BUILT DRAWINGS:**

Upon completion of each system, the installing contractor shall provide four (4) copies of system "As-Built" drawings to the owner. The drawings shall show actual installation details including all equipment locations (i.e.: control panel(s), agent cylinder(s), detectors, alarms, manuals and aborts, etc.) as well as piping and conduit routing details. Show all room or facilities modifications, including door and/or damper installations completed. One (1) copy of reproducible engineering drawings shall be provided reflecting all actual installation details.

**O) ACCEPTANCE TESTS:**

- 1) At the time "As-Built" drawings and maintenance/operations manuals are submitted, the installing contractor shall submit a "Test Plan" describing procedures to be used to test the control system(s). The Test Plan shall include a step-by-step description of all tests to be performed and shall indicate the type and location of test apparatus to be employed. The tests shall demonstrate that the operational and installation requirements of this specification have been met. All tests shall be conducted in the presence of the owner and shall not be conducted until the Test Plan has been approved.
- 2) The tests shall demonstrate that the entire control system functions as designed and intended. All circuits shall be tested: automatic actuation, solenoid and manual actuation, HVAC and power shutdowns, audible and visual alarm devices and manual override of abort functions. Supervision of all panel circuits, including AC power and battery power supplies, shall be tested and qualified.
- 3) A room pressurization test shall be conducted, in each protected space, to determine the presence of openings, which would affect the agent system concentration levels. The test(s) shall be conducted using the Retro-Tec Corp. Door Fan system, or equivalent, with integrated computer program. All testing shall be in accordance with NFPA 2001, current edition.
- 4) If room pressurization testing indicates that openings exist which would result in leakage and/or loss of the extinguishing agent, the installing contractor shall be responsible for coordinating the proper sealing of the protected space(s) by the general contractor or his sub-contractor or agent. The general contractor shall be responsible for adequately sealing all protected space(s) against agent loss or leakage. The installing contractor shall inspect all work to ascertain that the protected space(s) have been adequately and properly sealed. THE SUPPRESSION SYSTEM INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUCCESS OF THE ROOM PRESSURIZATION TESTS. If the first room pressurization test is not successful, in accordance with these specifications, the installing contractor shall direct the general contractor to determine, and correct, the cause of the test failure. The installing contractor shall conduct additional room pressurization tests, at no additional cost to the owner, until a successful test is obtained. Copies of successful test results shall be submitted to the owner for record.
- 5) Upon acceptance by the owner, the completed system(s) shall be placed into service.

**P) SYSTEM INSPECTIONS:**

- 1) The installing contractor shall provide two (2) inspections of each system, installed under this contract, during the one-year warranty period. The first inspection shall be at the six month interval, and the second inspection at the 12 month interval, after system acceptance. Inspections shall be conducted in accordance with the manufacturer's guidelines, and the recommendations of NFPA 2001.
- 2) Documents certifying satisfactory system(s) operation shall be submitted to the owner upon completion of each inspection.

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**Q) WARRANTY:**

- 1) All Fike system components furnished, and installed under this contract, shall be guaranteed against defects in design, materials and workmanship for the full warranty period which is standard with the manufacturer, but in no case less than one (1) year from the date of system acceptance.
- 2) Fike will cover the cost of IG-55 agent for a period of up to ten (10) years from date of system commissioning for any system discharges. The warranty is effective only if the original purchaser maintains a semi-annual service agreement for the ProInert fire suppression system with an authorized Fike distributor from the date of installation.