

**SPECIFICATION – TOTAL FLOODING + EXTENDED DISCHARGE CLEAN AGENT FIRE SUPPRESSION SYSTEM
UTILIZING 3M™ NOVEC™ 1230 FIRE SUPPRESSION AGENT**

1. GENERAL CONDITIONS

1.1. SCOPE:

1.2. This specification outlines the requirements for a “Total Flood + Extended Discharge” Clean Agent Fire Suppression System utilizing 3M™ Novec™ 1230 Fire Protection Fluid as the fire extinguishing agent. 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.

1.3. APPLICABLE STANDARDS AND PUBLICATIONS:

1.4. The design, equipment, installation, testing and maintenance of the clean agent 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:

1.4.1. NFPA No. 2001 - Clean Agent Fire Extinguishing Systems (Performance Based Design Section).

1.4.2. ETG FIRE, INC. Patent Application 16942879 “System Supplier”

1.5. 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.

2. REQUIREMENTS:

2.1. The Clean Agent Fire Suppression System installation shall be made in accordance with the drawings, specifications and applicable standards.

2.2. QUALITY ASSURANCE:

2.2.1. Installer:

2.2.1.1. The system shall be designed by the system components supplier.

2.2.1.2. The installing contractor shall be trained by the supplier to install, test and maintain a clean agent system.

2.2.1.3. When possible, the installing contractor shall employ a NICET certified special hazard designer, level 2 or above, who will be responsible for this project.

2.2.1.4. The installing contractor shall be an experienced firm regularly engaged in the installation of automatic clean agent, or similar, fire suppression systems in strict accordance with all applicable standards.

2.2.1.5. The installing contractor must have a minimum of five (5) years experience in the design, installation and testing of clean agent, or similar, fire suppression systems. A list of systems of a similar nature and scope shall be provided on request.

3. AGENT REQUIREMENTS AND SYSTEM DESCRIPTION AND OPERATION:

3.1. The system shall be a “Total Flood + Extended Discharge” Clean Agent Fire Suppression System utilizing 3M™ Novec™ 1230 Fire Protection Fluid as the fire extinguishing agent and meeting Applicable Standards and Publications 2.1 above.

3.2. The Clean Agent Fire Suppression System shall provide a minimum design concentration by volume as determined by the “system supplier.”

4. MATERIALS AND EQUIPMENT:

4.1. General Requirements:

4.2. The Clean Agent Fire Suppression System materials and equipment shall be standard products of the “system supplier’s” 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 and provided by the “system supplier.”

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5. AGENT STORAGE AND DISTRIBUTION:

5.1. Distribution piping, and fittings, shall be installed in accordance with the “system supplier’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.

5.1.1. All piping shall be reamed, blown clear and swabbed with suitable solvents to remove burrs, mill varnish and cutting oils before assembly.

5.1.2. All pipe threads shall be sealed with Teflon tape pipe sealant applied to the male thread only.

6. ELECTRICAL REQUIREMENTS

6.1. CONTROL PANEL:

6.1.1. The Control Panel, and its components, shall be UL listed and FM approved for Releasing Service and be suitable for Deluge/Pre-action sprinkler service.

6.1.2. The Control Panel shall perform all functions necessary to operate the system detection, actuation and auxiliary functions, as outlined.

6.1.3. The Control Panel shall support Cross Zoned, Sequential, Single Detector Release and Manual Release detection/actuation methods.

6.1.4. The Control System shall provide the following capabilities and functions:

6.1.4.1. Programmable pre-discharge and discharge timers

6.1.4.2. Resettable and continuous auxiliary output power

6.1.4.3. Five (5) optional Abort types

6.1.4.4. Intelligent Transistor protection to prevent noise spikes and microprocessor failure from inadvertently activating release outputs.

6.1.4.5. Dedicated alarm and trouble contacts programmable for alarm, trouble, pre-discharge, discharge, abort, supervisory or water flow functions, depending on panel configuration.

6.1.5. The Control Panel shall be specifically cross listed with the releasing solenoid of the Total Flooding + Extended Discharge (contact the “system supplier” for further information solenoid compatibility).

7. CAUTION and ADVISORY SIGNS:

7.1. Provide signs, as required, to comply with NFPA 2001 and the recommendations of the “system supplier”:

7.2. Entrance sign: One (1) required at each entrance into a protected space.

7.3. Manual Discharge Sign: One (1) required at each manual discharge station.

7.4. Abort Station Sign: One (1) required at each abort station.

7.5. Flashing Light sign: One (1) required at each agent discharge strobe over each exit from a protected space.

8. SYSTEM INSPECTION and CHECKOUT:

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

8.2. All containers and distribution piping shall be checked for proper mounting and installation.

8.3. The complete system shall be functionally tested, in the presence of the “system supplier” or his representative, and all functions, including system and equipment interlocks, must be operational.

9. TRAINING REQUIREMENTS:

9.1. Prior to final acceptance, the installing contractor shall provide operational training to owner’s personnel.

10. AS-BUILT DRAWINGS

- 10.1. Upon completion of the installation, the installing contractor shall provide accurate as-built information to the "system supplier" for updates to the system design documents which will in turn be updated and provided back to the installing contractor.

11. ACCEPTANCE TESTS:

- 11.1. The tests shall demonstrate that the entire control system functions as designed and intended. All circuits shall be tested.
- 11.2. A room pressurization test shall be conducted to determine the presence of openings, which would affect the agent system design. 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 "system supplier" requirements.
- 11.3. Upon acceptance by the owner, the completed system(s) shall be placed into service.

12. SYSTEM INSPECTIONS:

- 12.1. The system shall be tested & inspected in accordance with NFPA 2001. The first inspection shall be at the six month interval, and the second inspection at the 12 month interval, and thereafter annually after system acceptance.