



Clark County Fire Prevention

Mission Statement: "To provide the highest level of fire protection and related services"

105.8.f.2-9

TITLE: CLEAN AGENT FIRE EXTINGUISHING SYSTEMS

SCOPE: A clean agent fire extinguishing systems shall be installed and permitted in accordance with this guide and the requirements contained in the 2005 Clark County Fire Code, 1998 edition of National Fire Protection Association (NFPA) 2001 and current manufacturer specifications.

PURPOSE: To provide standardized Fire Department requirements relating to the installation of clean agent fire extinguishing systems.

SPECIFICATIONS AND REQUIREMENTS

At the time of permit application, three (3) sets of plans, drawn to an indicated scale, must be submitted for review and approval. Permit fees for this type of submittal vary. The standard permit fee is due upon submittal. Please see the **Clark County Fire Department Permit and Service Fee Schedule** for specific information. Please check our website for plan status. Any additional fees will be indicated on the website. Once the plans have been approved and any outstanding fees have been paid, an inspection can be scheduled.

Our website is <http://www.accessclarkcounty.com/fire/firedept.htm>. To check on plan status, click on the "Plan Status" button and follow the instructions. To schedule an inspection, click on "Services" in the teal strip on the top. On the left side under **Inspection** click on "Fire Inspection" and follow the instructions.

Three (3) submittal packages are required to be submitted to the Clark County Fire Department Plans Check Division. Submittal packages must contain the following:

- 1) Name of owner and occupant; location, including street address; and Assessors Parcel Number (APN), point of compass and symbol legend.
- 2) Location and construction of protected enclosure walls and partitions and fire walls.
- 3) Enclosure cross section, full height or schematic diagram, including location and construction of building floor/ceiling assemblies above and below, raised access floor and suspended ceiling
- 4) Type of clean agent being used and design extinguishing concentration.
- 5) Description of occupancies and hazards being protected, designating whether or not the enclosure is normally occupied; exposures surrounding the enclosure; the agent storage containers used including internal volume, storage pressure, and nominal capacity expressed in units of agent mass, or volume at standard conditions of temperature and pressure.

- 6) Description of nozzle(s), pipe and fittings used including material specifications, grade and pressure rating; description of wire or cable used. The required method of making wire terminations shall be detailed.
- 7) Description of the method of detector mounting. Details of each unique rigid pipe support configuration showing method of securement to the pipe and to the building structure. Details of the method of container securement showing method of securement to the container and to the building structure.
- 8) Equipment schedule or bill of materials for each piece of equipment or device showing device name, manufacturer, model or part number, quantity and description.
- 9) Plan view of protected area showing enclosure partitions including, but not limited too, agent storage containers, piping, nozzles; type of pipe hangers and rigid pipe supports, detection alarm, and control system including all devices and schematic of wiring interconnection between them; end-of-line device locations; location of controlled devices such as dampers and shutters; location of instructional signage;
- 10) Isometric view of agent distribution system showing the length and diameter of each pipe segment; node reference numbers relating to the flow calculations; fittings including reducers and strainers; orientation of tees, nozzles including size, orifice port configuration, flow rate and equivalent orifice area.
- 11) Scale drawing showing the layout of the annunciator panel graphics if required by the authority having jurisdiction.
- 12) Complete step-by-step description of the system sequence of operations including functioning of abort and maintenance switches, delay timers, and emergency power shutdown.
- 13) Point-to-point wiring schematic diagrams showing all circuit connections to the system control panel graphic annunciator panel.
- 14) Point-to-point wire schematic diagrams showing all circuit connections to external or add-on relays.
- 15) Complete calculations to determine enclosure volume, quantity of clean agent, and size of backup batteries. Method used to determine number and location of audible and visual indicating devices, and number and location of detectors
- 16) Details of any special features.

Testing shall include a review of both the mechanical and electrical components. The integrity of the enclosure shall be reviewed by a door fan test.

Testing shall also include functional tests:

Preliminary functional tests:

Notify alarm responding company, if applicable prior to any testing;
Disable each agent storage container so as not to release any agent;
Check each detector for proper response;
Check that polarity has been observed on all polarized alarm devices and auxiliary relays;
Check that all end-of-line resistors have been installed across the detection and alarm bell circuits where required; Check all supervised circuits for proper trouble response.

System functional operational test:

Operate detection initiating circuit(s). All alarm functions shall occur according to the design specification.

Operate the necessary circuit to initiate a second alarm circuit if present. Verify that all second alarm functions occur according to design specifications.

Operate manual release. Verify that manual release functions occur according to design specifications. If supplied, operate abort switch circuit. Verify that abort functions occur according to design specifications. Confirm that visual and audible supervisory signals are received at the control panel.

Test all automatic valves unless testing the valve will release agent or damage the valve (destructive testing).

Where required, check pneumatic equipment for integrity to ensure proper operation.

Remote monitoring operations test: operate one of each type of input device while on standby power. Verify that an alarm signal is received at remote panel after device is operated. Reconnect primary power supply. Operate each type of alarm condition on each signal circuit and verify receipt of trouble condition at the remote station.

Control panel primary power source test: Verify that the control panel is connected to a dedicated circuit and labeled properly. This panel shall be readily accessible, yet restricted from unauthorized personnel. Test primary power failure in accordance with the manufacturer's specification with the system fully operated on standby power.

Return system to full service condition upon completion of tests.

Plans shall be drawn to an indicated scale or be suitable dimensioned.