Clark County Department of Building & Fire Prevention

4701 West Russell Road, Las Vegas, NV 89118

(702) 455-7316 FAX (702) 455-7347

Samuel D. Palmer, Director/Building & Fire Official · Girard Page, Fire Marshal

Permit Type: 105.7.5.f
Control Number: F.0
Effective Date: 11/15/11

TITLE: CLEAN AGENT SYSTEMS

SCOPE: Clark County Department of Building & Fire Prevention requirements for the submittal and design of a Clean Agent System.

For new work in existing buildings, see the "New Work in Existing Buildings" guideline.

PURPOSE: To standardize plan/permit requirements of the Fire Prevention in accordance with the Clark County Fire Code. Permits are valid through the duration of construction. Work must commence within 180 days, and remain active with no period of inactivity exceeding 180 days, or the permit becomes invalid.

DEFINITIONS:

Assessor's Parcel Number (APN): A unique number assigned to each property by the Clark County Assessor's office.

NFPA: NFPA is an acronym for National Fire Protection Association.

NICET: NICET is an acronym for "The National Institute for Certification in Engineering Technologies", which is an organization that was established in 1961 to create a recognized certification for engineering technicians and technologist within the United States.

PERMIT FEES:

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:

An application must be completed for each submittal. A minimum of three sets of plans and three sets of specifications shall be submitted with the permit application. The plans shall be drawn to an indicated scale (1/8" scale and ¼" scale are preferred). Plans shall show compliance in accordance with Chapter 9 of the Clark County, as adopted and amended. All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

Plans shall address the following:

1. Indicate the project name, address, and APN (Assessor's Parcel Number). Note that each separate building/tenant space having a unique address requires a separate permit.

2. Contractor name, address, phone number, license numbers, license classification, and license limit.

3. Wet signature of licensee (contractor's Master or Qualified Employee).

4. Wet signature of the NICET designer or Nevada Registered Fire Protection Engineer who prepared the plan, drawing and calculations. For plans prepared by a NICET designer, the designer's printed name and certificate number shall follow the signature. Starting on January 1, 2012, plans for clean agent extinguishing systems shall have a wet signature of a minimum NICET Level II designer for Special Hazards Suppression Systems or Nevada Registered Fire Protection Engineer.

5. Description of occupancies and hazards being protected, designating whether or not the enclosure is normally occupied.

6. Location and construction of protected enclosure walls and partitions. Location of fire walls.

7. 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.

8. Type of clean agent being used and design extinguishing or inerting concentration.

9. For an enclosure protected by a clean agent fire extinguishing system an estimate of the maximum positive and the maximum negative pressure, relative to ambient pressure, expected to be developed upon the discharge of agent.

10. Description of exposures surrounding the enclosure.

11. Description of 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.

12. Description of nozzle(s) used including size, orifice port configuration, and equivalent orifice area.

13. Description of pipe and fittings used including material specifications, grade, and pressure rating.

14. Description of the method of detector mounting.

15. Equipment schedule or bill of materials for each piece of equipment or device showing device name, manufacturer, model or part number, quantity, and description.

16. Plan view of protected area showing enclosure partitions (full and partial height); agent distribution system including agent storage containers, piping, and 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; and location of instructional signage.

17. 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; and orientation of tees, nozzles including size, orifice port configuration, flow rate, and equivalent orifice area.

18. 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 the method of securement to the container and to the building structure.

19. Complete step-by-step description of the system sequence of operations, including, but not limited to, the operation of all applicable initiating devices, the operation of audible and visual pre-discharge and post-discharge alarms, functioning of abort and maintenance switches, delay timers, and emergency power shutdown.

20. Point-to-point wiring schematic diagrams showing all circuit connections to the system control panel and graphic annunciator panel.

21. Point-to-point wiring schematic diagrams showing all circuit connections to external or add-on relays.

22. System flow calculations shall be submitted with the plans.

23. Complete calculations to determine enclosure volume, quantity of clean agent, and size of backup batteries and method used to determine number and location of audible and visual indicating devices, and number and location of detectors.

24. Pressure relief vent area, or equivalent leakage area, for the protected enclosure to prevent development, during system discharge, of a pressure difference across enclosure boundaries that exceeds a specified enclosure pressure limit. For clean agent systems that utilize inert gases as the extinguishing agent, an analysis prepared by a licensed engineer that provide vent area calculations shall be submitted and approved.

25. Symbol legend with equipment description (manufacturer's name and model number) and mounting description (surface, semi-flush, flush, and exterior).

26. Floor plan drawn to an indicated scale on sheets of a uniform size showing:
    a. Point of compass (north arrow).
    b. Room use identification labels.
    c. Alarm initiating device, notification appliance, and auxiliary controlled or monitored equipment and systems, control and annunciation equipment location(s).
    d. Conductor/conduit type, routing and size.
    e. Location of end-of-line resistors.
    f. Zone identification (conventional system).
    g. Device addresses (addressable systems).
    h. Notification appliance numbering by circuit and device corresponding to the riser and/or one line diagrams.
    i. Power panels and circuit connections.
    j. Key plan.
    k. Ceiling heights, and construction (i.e., beam, joist, soffit, or other projection extending below the ceiling when a ceiling mounted device and/or appliance is used).

27. Riser diagram including the following information:
    a. General arrangement of the system, in building cross-section.
    b. Wall/shaft/stairwell and/or cable ratings when survivability or class A requirements apply.
    c. Type and number of circuits in each riser.
    d. Type and number of fire alarm system components/devices on each circuit, on each floor or level.

28. Standardized calculations (shown on the plans unless otherwise approved):
    a. Battery calculations (all panels).
    b. Load calculations (all notification appliance and auxiliary circuits).
    c. Voltage drop calculations (all notification appliance circuits, including remote annunciators and auxiliary appliances).

29. Product data submittal shall be submitted which shall include the following items: a cover index sheet listing products used by make and model number, manufacturer data sheets and listing information for all equipment (including but not limited to clean agent, tank, piping, nozzles, releasing solenoid, releasing fire alarm control panel, detection devices, fire alarm system relays and monitor modules, notification appliances, and manual release and abort buttons), wire and cable.

30. Provide a detailed, written scope of work on the plans. Clearly identify the scope of work for the permit utilizing shading, clouding, or other means to differentiate the scope of work from areas that are not within the scope of work. Clearly indicate on the plans what devices are being installed and what devices were previously installed.

31. Any additional information determined necessary by the fire code official. Installation acceptance shall include a review and test of both the mechanical and electrical components. The integrity of the enclosure(s) shall be tested by a door fan test.

PERMIT REVISIONS AND RESUBMITTALS:

Revisions to approved plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

PLANS CHECK STATUS INSTRUCTIONS:

The status of the review can be checked by logging on to:
www.clarkcountynv.gov/building/fire-prevention

INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:

If approved, an inspection will need to be scheduled. To schedule an inspection, go to: www.clarkcountynv.gov/building/fire-prevention
A fire inspector will review your site in accordance with the approved plans and this guideline.

The Fire Prevention (FP) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance, when required by the fire chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.