



CLARK COUNTY FIRE DEPARTMENT
Fire Prevention Bureau
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Permit Type: 105.7.24
Control Number: F.0
Effective Date: 12/15/11

TITLE: SMOKE REMOVAL CONTROL PANEL

SCOPE: Clark County Fire Department requirements for the submittal and design of a Fire Fighter Smoke Removal Panel. Note that smoke control and smoke removal systems can share panel(s).

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

PURPOSE: To standardize plan/permit requirements of the Fire Department 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.

CCDS: CCDS is an acronym for Clark County Development Services.

Fire Fighter Smoke Removal Panel: A Fire Fighter Smoke Removal Panel (FFSRP), also known as a smoke removal annunciator, is a panel that provides fire fighters with the ability to manually control smoke removal systems.

Narrative: For the sake of this guideline, the narrative shall describe the sequence and operation for all LED's and switches. It shall describe the initial and override sequences for all switches shown on the graphic panel. The narrative shall be formatted as an instruction sheet. A copy of the approved narrative shall be laminated and attached onto or next to the FFSRP for use by the Fire Department in an emergency.

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, three sets of specifications and three copies of the required narrative (see below for the narrative definition) shall be submitted with the permit application. A copy of the CCDS-approved smoke removal diagrams shall be submitted as well. The plans shall be drawn to an indicated scale. Plans shall show compliance in accordance with Chapter 9 of the Clark County Fire Code, as adopted and amended. On the plans, indicate the project name, address, and APN (Assessor's Parcel Number). All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

Fire Fighter Smoke Removal Panels are required to be installed for facilities that are required to have smoke removal systems per the International Building Code. The FFSRP shall be located within the Fire Command Center.

The FFSRP shall provide graphics depicting the facility protection and smoke control fan locations. The panel shall provide control switches to allow manual override and control of smoke control systems within the facility. Light Emitting Diodes (LED) shall be provided on the panel for the purposes of annunciation of smoke removal fans and additional items as described in this guideline.

The building layout must be graphically represented to clearly indicate location and boundaries of smoke zones with respect to adjacent areas. All walls and doors comprising the egress system for all smoke removal zones must be shown on the graphics layout. The majority of graphics will need to be shown on a plan view. An exception is allowed for high-rise buildings having common floor plans and one smoke zone per high-rise floor, where a section view of the tower can be allowed in conjunction with plan views of typical tower floors.

FFSRP Panel Requirements:

1. Show a north directional arrow.
2. Show a building layout at an indicated scale on a contrasting background; black and white are acceptable colors for the graphic outlines and for the panel background.
3. The maximum height of any portion of the panel shall be 7'-0" above the finished floor, and the minimum height of any portion of the panel shall be 2'-6" from the floor.
4. Include a panel title block, indicating the facility name and address, and the title "Fire Fighter Smoke Removal Panel."

5. Label each smoke zone area; the label shall include the floor level, i.e., SZ 16-1 shall be the first smoke zone on the 16th floor. Note: when the floor level above grade is different than the floor designation, provide both numbers; ie if the 3rd level above grade is designated as level 15 in the elevators; provide both designations on the panel.
6. Designate between smoke removal zones and areas that do not have smoke removal capabilities.
7. Show all floor and roof levels for all areas.
8. Label the locations of the Fire Command Center, Fire Pump, Emergency Generators, elevators providing access to all floor and roof levels, stairs providing access to all floor and roof levels, and Secondary Response Point.
9. Show the location of all fan units providing smoke removal functions. Labels must be provided for each fan and for each opening associated with a fan. Therefore, if there is a fan on the building roof that serves the first level by exhausting air through an opening on the first level, the fan unit, clearly labeled, must be shown on the roof graphic, and the exhaust opening must be shown on the first level, clearly labeled as an exhaust opening associated with the fan.
10. Label fans with a Hand/Auto switch allowing for manual control at the unit.
11. Contain LED's as required. LED annunciation is required for each smoke removal fan for each smoke removal zone, "Abnormal Switch Position", and for power. For smoke removal fans, the associated LED shall be close to the graphical representation of the fan.
12. Contain switches for manual control of each smoke removal zone (including passive zones utilizing only dampers).
13. Contain a button for lamp test.
14. Provide a legend for all symbols, including fans, supply/exhaust openings, etc, and for the LED's provided on the panel.

Control Switches and Buttons:

Manual control switches must be provided at the panel. Control switches shall be provided for each individual smoke removal zone and for each elevator hoist way vent.

Control switches shall be adjacent to LED's associated with each switch. Switches shall be three-position and shall be labeled as "manual purge-auto-off" for smoke removal

systems. Switches shall be located on the FFSRP reasonably close to the graphical depiction of the associated area/component.

Control switches shall be provided for:

- **Each smoke removal system:** the switch for each smoke removal system that is only manually activated for mop-up purposes is required to have “manual purge–auto–off” positions labeled. In “manual purge”, the switch will activate fans and dampers that are required to achieve the exhaust mode. In the “auto” position, the normal building function will dictate the functioning of all fans and dampers. In the “off” position, the switch is required to move all fans and dampers to a “passive” mode by shutting down all fans and closing all dampers serving that zone.

LED Operation:

Status of smoke removal fans are required to be indicated on the Fire Fighter Smoke Removal Panel. Status shall be indicated using LED's. Acceptable LED colors are red, yellow, and green. Red-yellow-green LED sets shall be provided for each smoke removal zone.

1. There shall be a yellow indicator light that will illuminate when any switch on the FFSRP has been turned from “auto” or set to any position that will override automatic function of the normal building functions. The label adjacent to the yellow LED shall state “Abnormal Switch Position.”
2. There shall be a green indicator light that will illuminate to indicate that the FFSRP is powered. The label adjacent to this green LED shall state “Power On.”
3. A legend of LED's shall be provided, and the LED legend shall be continuously lit. The legend shall indicate the following colors and labels:
 - a. Red LED – Smoke Mode
 - b. Yellow LED – Trouble
 - c. Green LED – Normal
4. The various LED's shall operate as follows:
 - a. **Red Only:** Shall be illuminated when the associated manual switch has activated the smoke removal fans and the fans have been confirmed to be in the proper configuration.
 - b. **Green Only:** Shall be illuminated to indicate normal mode when there is no initiation by a manual switch for a smoke removal zone to indicate that the fans are ready for operation.
 - c. **Yellow Only:** There shall be no situation where only a yellow LED is illuminated. The yellow LED shall only illuminate in conjunction with a red

LED or green LED.

- d. **Red and Yellow:** A combination of the red and yellow LED's shall illuminate to indicate that the smoke removal zone is being initiated by the manual switch, and positive status indicating proper configuration of smoke removal fans has not been received.
- e. **Green and Yellow:** A combination of green and yellow LED's shall illuminate when a smoke removal zone is not initiated and the smoke removal fans do not report normal operating status. For instance, this may occur when there is a loss of power required for a smoke removal fan.

Other Requirements:

1. **Multiple configurations:** In no case is the smoke removal system required to configure for more than two adjacent smoke removal zones at a time.
2. **Operation and timing:** All components shall be configured to smoke removal status and annunciation of status of smoke removal fans shall be indicated on the FFSRP within 90 seconds of the initiation of the smoke removal switch.

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/depts/fire

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/depts/fire. A fire inspector will review your site in accordance with the approved plans and this guideline.

The Clark County Fire Department's Fire Prevention Bureau (FPB) 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 may be required and when it is it 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.