



Specializing in Fire, Building, and Life Safety

Corporate Office
2420 Alft Lane
Elgin, IL 60124
P: 847.697.1300
F: 847.697.1310
www.firesafetyfsci.com

Regional Office
23650 Woodward Avenue
Suite 200
Pleasant Ridge, MI 48069
P: 248.545.3330
F: 248.545.3376

SMOKE CONTROL SYSTEM INCLUDING STAIRWELL PRESSURIZATION SUBMITTALS

Information Required for Submittal to be Reviewed by FSCI

See NFPA 92B for a complete submittal list.

- Four sets of complete plans showing the job name and complete address; and must include the design professional in charge name, address and phone number.
- Plans must be signed and sealed by the design professional in charge of the project and include all necessary, related architectural, electrical, mechanical, accessibility, etc. drawings and material specifications.
- Plans must be to scale, fully dimensioned to determine building area and height; and clearly show work to be done.
- Description of building use or occupancy for all areas of the building.
- Proposed type of construction including testing/listing agency details for all fire rated construction.
- Complete exit details to fully evaluate the means of egress including; occupant loads, means of egress arrangement, corridors, doors, stairs, emergency power supply, etc.
- Provide a Design Brief that should contain a statement of the goals and objectives of the smoke management system and provide the design assumptions to be used in the conceptual design. The design brief should include at least the following:
 - (1) System performance goals, design objectives, and design approach
 - (2) Performance criteria (including design tenability criteria where applicable)
 - (3) Building characteristics (height, area, layout, use, ambient conditions, and other fire protection systems)

- (4) Design basis fire(s) - minimum heat release rate is 5,000 btu's unless full documentation for a lower heat release rate is provided
- (5) Design fire location(s)
- (6) Identified design constraints
- (7) Proposed design approach
- (8) Egress analysis, if performed
- (9) Tenability analysis, if performed

The design brief should be developed in the first stage of the design process to assure that all parties understand and agree to the goals, objectives, design fire, and design approach so that the conceptual design can be developed and agreed upon. Interested parties should include the building owner, building/fire code official, and the design team.

- Provide a Conceptual Design Report (Analysis) that provides the details of the conceptual design based upon the design brief and document the design calculations.

The conceptual design should include the following design elements and the technical basis for the design elements and be signed and sealed by the design professional:

- (1) Height, cross-section, and plan area of the large volume to be protected
- (2) Smoke management method (active, passive, pressurization, airflow, exhaust) and design interval time (if applicable)
- (3) Detection method, detector characteristics, spacing, and smoke extract system actuation means (and supporting detection and smoke-filling calculations) including fire alarm control unit approval for smoke control listed per UL UUKL
- (4) Smoke extraction locations and sizes, exhaust flow rates (and supporting calculations for layer interface location and avoidance of plug holing)
- (5) Inlet vent area(s), location(s), and operation method (and supporting calculations for inlet flow rate and flow velocity including minimum and maximum pressure differentials)
- (6) Equipment and controls specification, description and operation including fans, dampers, etc. listed and rated for smoke control systems
- (7) Egress analysis, if performed
- (8) Fire size and expected fuel packages
- (9) If the building is protected with an automatic sprinkler system
- (10) Duration of operation

The conceptual design report must include all design calculations performed to establish the design elements; all design assumptions, and all building use limitations that arise out of the system design.

- Provide an operations and maintenance manual outlining all requirements to ensure the proper operation of the system over the life of the building. The manual shall include the following:
 - (1) Procedures used in the initial commissioning of the system as well as the measured performance of the system at the time of commissioning
 - (2) Testing and inspection requirements for the system and system components and the required frequency of testing
 - (3) Critical design assumptions used in the design, and the limitations on the building and its use that arise out of the design assumptions and limitations
- Provide a detailed special inspections and tests report required for this smoke control system to include a step by step testing procedure outline as required by NFPA 92B.
- For stair pressurization calculations, include the leakage rate assumptions and justification to support those assumptions. Specify the number of doors assumed to be open and justification to support that assumption.