



DEPARTMENT OF PERMITTING SERVICES

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County Executive

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Smoke Management Submission Guidelines

This document shall apply to newly constructed and modified buildings required to have a smoke management system in accordance with the International Building Code or NFPA 101 Life Safety Code.

Applicable codes and standards will include, but not be limited to: International Building Code, International Mechanical Code, NFPA 1 Fire Code, NFPA 101 Life Safety Code, NFPA 92 Standard for Smoke-Control Systems, NFPA 110 Standard for Emergency and Standby Power Systems and all applicable Montgomery County Executive Regulations and Amendments.

A third-party peer review by a State of Maryland Licensed Fire Protection Engineer will be required with all submissions.

Montgomery County Plan Review Process for Smoke Management Systems

All documents submitted will be reviewed for the required content found in these guidelines. A review of the rational analysis, the assumptions made by the design professional and the report generated by the third-party Fire Protection Engineer will be performed. If all the submission guidelines have been satisfied, the third-party engineer agrees with the design engineers' assumptions and the reviewer finds no contentions with the analysis, conclusions or design then the review will be approved for construction.

Plan Submission Guidelines

The submitted construction documents must include pages dedicated to the smoke management system. The rational analysis and specific provisions required by these guidelines must be included in the submittal.

The rational analysis must be completed by a registered design professional having adequate knowledge of fire and mechanical systems.

The design documents should include testing criteria and test schedules in conformance with NFPA 1 and the IBC.

The following details are required and should be used as an example of the minimum necessary information to facilitate a timely review.

Atrium:

- Description of methodology used to include a discussion of the appropriateness of the methodology based on the scenario.
- Complete rational analysis and all parameters used in the assumption. Note that Montgomery County Executive Regulations specify a minimum design fire of 5 megawatts for atrium smoke management systems.
- Calculations, including a plug hole calculation, inputs and all relevant information used in completing the design.
- Demonstrate the maximum make up air velocity will be no greater than 200 FPM.
- When utilizing computer modeling include a hard copy summary report with all inputs and other relevant information. The modeling output file should be submitted in electronic form.
- The registered design professional or third-party engineer must sign and seal the certification statement accompanied with this document.

Stairwell Pressurization:

- Description of methodology used to include a discussion of the appropriateness of the methodology based on the scenario.
- Complete rational analysis and all parameters used in the assumption.
- Calculations, inputs and all relevant information used in developing the design.
 1. The calculations must include a height limit calculation for winter and summer conditions and a door opening force calculation.
 2. The door opening force may not exceed 30 pounds with a maximum pressure of .35 inches of water.
- Stairwells must be calculated individually.
- The system must be designed to meet the requirements of the IBC with a minimum pressure of .1 inches of water and a maximum of .35 inches of water when tested with all doors closed. The requirements of NFPA 92 must also be met with a minimum pressure of .05 inches of water when tested with one door open to the interior of the building and one door open at the level of discharge. If there is a door directly to the outside from the stair, the exterior door must be one of the two doors used in the design.
- When utilizing computer modeling include a hard copy summary report with all inputs and other relevant information. The modeling output file should be submitted in electronic form.
- The registered design professional or third-party engineer must sign and seal the certification statement accompanied with this document.

Elevator Shaft Pressurization:

- Description of methodology used to include a discussion of the appropriateness of the methodology based on the scenario.
- Complete rational analysis and all parameters used in the assumption.
- Calculations, inputs and all relevant information used in making the conclusion. The calculations must include a height limit calculation for winter and summer. The minimum and maximum design pressures must fall between .1 and .25 inches of water as directed in the IBC.

- Fan capacity must either be adjustable with a minimum capacity of 1000 CFM per elevator door or meet the conclusion of the rational analysis.
- When utilizing computer modeling include a hard copy summary report with all inputs and other relevant information. The modeling output file should be submitted in electronic form.
- The registered design professional or third-party engineer must sign and seal the certification statement accompanied with this document.

Underground Buildings:

- Description of methodology used to include a discussion of the appropriateness of the methodology based on the scenario.
- The system should be capable of restricting the movement of smoke to the general area of fire origin while maintaining a tenable means of egress.
- Where compartmentalization is required, each compartment shall have an independent smoke control system.
- Complete rational analysis and all parameters used in the assumption.
- Calculations demonstrating pressures differences across the smoke barriers, door opening force, inputs and all relevant information used in developing the design.
- When utilizing computer modeling include a hard copy summary report with all inputs and other relevant information. The modeling output file should be submitted in electronic form.
- The registered design professional or third-party engineer must sign and seal the certification statement accompanied with this document.

High Rise Smoke removal:

- The design professional must demonstrate compliance with IBC Smoke Removal Systems for High Rise Structures.

I certify that the proposed smoke management systems design complies with all referenced and applicable codes and standards contained within the Montgomery County Smoke Management Submission Guidelines.

Signature: _____ Date: _____

Seal: