



ASHRAE[®] GUIDELINE

Commissioning Smoke Management Systems

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1791 Tullie Circle, NE • Atlanta, GA 30329

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This is a preview of "ASHRAE Gdl 5-1994 (R...)". [Click here to purchase the full version from the ANSI store.](#)

1. PURPOSE

The purpose of this guideline is to provide methods for verifying and documenting that the performance of smoke management systems conforms with design intent.

2. SCOPE

2.1 This guideline covers all types of smoke management systems and the

- (a) documentation of occupancy and use requirements and system design assumptions;
- (b) documentation of design intent, system description, and operation;
- (c) functional performance testing and documentation necessary for evaluating system acceptance; and
- (d) integration testing with other building systems that affect the performance of the smoke management system, such as fire detection and alarm, HVAC, controls, power supplies, and separations.

2.2 Methods of commissioning HVAC and other building systems are not covered in this guideline except as provided in 2.1(d). Methods for commissioning of HVAC systems are given in *ASHRAE Guideline 1-1989*.¹

3. RECOMMISSIONING

Space use and occupancy will change, and, as smoke management systems age, their performance may deteriorate. Therefore, throughout the useful life of the building, there will be a need to recommission these systems periodically.

4. DEFINITIONS

4.1 Definition of terms used in this guideline may be found in *ASHRAE Terminology of Heating, Ventilation, Air-Conditioning, and Refrigeration*.²

4.2 Additional terms used in this guideline not found in the *ASHRAE Terminology* are defined in this section.

acceptable performance: a component or system able to meet specified design parameters under actual load.

authority having jurisdiction: the organization, office, or individual responsible for "approving" equipment, an installation, or a procedure.

commissioning authority: the qualified person, company, or agency that will plan and carry out the overall commissioning process. There are many options as to which party to the commissioning process will be the "authority." The design professional, contractor, independent commissioning agency, or owner may be the commissioning authority.

commissioning plan: the overall document that outlines the organization, scheduling, allocation of resources, documen-

tation, etc., pertaining to the overall commissioning process.

design professional: the architect, architect-engineer, or engineer responsible for the design and preparation of contract documents for the smoke management systems.

event matrix: a matrix of zone inputs and outputs that describes the totality of control events or sequences required for each piece of equipment or control device in response to inputs from each zone in a smoke management system.

functional performance testing: that full range of checks and tests carried out to determine if all components, subsystems, systems, and interfaces between systems function in accordance with the contract documents. In this context, "function" includes all modes and sequences of control operation, all interlocks and conditional control responses, and all specified responses to emergency conditions.

fire fighter's smoke control station: fire fighter's smoke control station (FSCS) includes monitoring and overriding capability over smoke control systems and equipment provided at designated location(s) within the building for the use of the fire department.

pressurized stair shafts: a type of smoke control system in which stair shafts are mechanically pressurized with outdoor air to keep smoke from contaminating them during a fire incident.

project program: the written description of the commission plan.

smoke: the airborne solid and liquid particulates and gases evolved when a material undergoes pyrolysis or combustion, together with the quantity of air that is entrained or otherwise mixed into the mass.

smoke barrier: construction, either vertical or horizontal, such as a wall, floor, or ceiling assembly, that is designed and constructed to restrict the movement of smoke. A smoke barrier may or may not have a fire resistance rating. Smoke barriers may have openings protected by closing devices or adequate airflows.

smoke control mode: a predefined operational configuration of a system or device for the purpose of smoke control.

smoke control system: an engineered system that uses mechanical fans to produce airflows and pressure differences across barriers to limit smoke movement.

smoke control zone: a space within a building enclosed by smoke barriers, including the top and bottom, that is a part of a zoned smoke control system.

smoke damper: an approved opening protection device designed to resist the passage of air or smoke that meets the