

Orange County Fire Authority

Community Risk Reduction

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Smoke Control Systems



Guideline G-03

Serving the Cities of Aliso Viejo • Buena Park • Cypress • Dana Point • Garden Grove • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods
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Smoke Control Systems

PURPOSE

To provide an outline of the smoke control system plan review and inspection procedures required by the Orange County Fire Authority (OCFA) in accordance with requirements of Section 909 of the 2022 California Building Code (CBC).

SCOPE

This guideline pertains to all projects within the OCFA jurisdiction where smoke control systems are required. It is the owner's responsibility to retain qualified firms or individuals to conduct smoke control system design and testing. The following information outlines the required steps to process smoke control system design, plan review, and final system acceptance testing.

SUBMITTAL REQUIREMENTS

1. **Rational Analysis Report** – A report must be submitted to OCFA that addresses the requirements of Section 909 of the CBC. The report shall be based on well-established principles of engineering practice and be prepared by a qualified engineer who is licensed in California. The report shall be signed and stamped by the licensed engineer and shall, at a minimum, include and explain the following:
 - 1.1. Design fire
 - 1.2. Smoke control system method
 - 1.3. Stack effect
 - 1.4. Wind effect
 - 1.5. Temperature effect of fire
 - 1.6. Climate
 - 1.7. Smoke control zones
 - 1.8. Clear identification of active and passive zones
 - 1.9. Clear identification of smoke barrier separations
 - 1.10. HVAC system
 - 1.11. Smoke and fire dampers (managed vs. non-managed)
 - 1.12. Smoke control panel and configuration
 - 1.13. Sequence of operation

Note: The OCFA may require third party review of the rational analysis report.

2. **Smoke Control Plan Review** – The rational analysis report and other related smoke control documents shall be submitted to OCFA for review and approval. The submittal shall include the report and the latest architectural, mechanical, electrical, and fire/life safety system drawings. The drawings shall show the location of smoke barrier separations, shafts, fire-resistive separations, smoke and fire dampers, fire control room, etc. Any other

design features shall be included in the submittal for review. OCFA may require third party review of the smoke control plan and related documents.

3. **Special Inspection Requirements** – The owner shall retain a qualified Special Inspection Agency (SIA) as approved by OCFA. It is the owner’s responsibility to contact OCFA and verify the qualification of the SIA. The SIA and the design agency that prepared the rational analysis report shall be two independent agencies unless it is specifically approved by OCFA. The SIA will:
 - 3.1 Coordinate the review of the contractor’s documents to verify conformance with the approved rational analysis report, coordinate work between the construction team and OCFA, and forward a copy of the approved drawings to OCFA for their records.
 - 3.2 Prepare a guideline for testing of the smoke control system, coordinate the interface between the trades, and include the testing procedure. The guideline shall be reviewed and approved by OCFA. Refer to the OCFA fee schedule for costs associated with review and inspection of smoke control systems.
 - 3.3 Prepare an inspection report to document inspection activities conducted each month. Such reports shall be placed in a binder. A duplicate copy of the binder containing the inspection report shall be kept at the job site (General Contractor’s office) during the course of construction.
4. **Final Inspection Report** – A complete report of system testing shall be prepared by the SIA. The report shall be reviewed by the Engineer of Record and submitted to OCFA. The report shall be in accordance with the requirements of Section 909.18.8.3 of the CBC. The SIA must address the specific process that will be followed for the final OCFA acceptance testing process. When the entire system is tested and found fully functional with no conditional or outstanding issues, the final inspection report shall be submitted to OCFA at least 48 working hours prior to the testing of the system by OCFA. The report shall be signed by both the inspection agency and the engineer of the record and shall contain the frequent testing report, smoke control system manufacturer data sheet, and the final testing results.
5. **Final OCFA Acceptance Testing** – Following receipt of the final inspection report, an inspection shall be scheduled with OCFA to conduct final acceptance testing. Final approval and sign-off by OCFA is based on the successful completion of this test.

Flowchart table summarizing the above procedure:

SMOKE CONTROL REVIEW & APPROVAL PROCESS

