

Guideline 44-2024



ASHRAE Guideline 44-2024, *Protecting Building Occupants from Smoke During Wildfire and Prescribed Burn Events*

Purpose

Provides comprehensive recommendations to safeguard indoor air quality (IAQ) during wildfire and prescribed burn events.

Significance

Wildland fire events have grown more frequent and intense in recent years, threatening air quality and public health. Some groups, such as pregnant women, children, older adults, and people with pre-existing conditions can be especially susceptible to the contaminants in wildfire smoke. To better protect individuals, and to equip building professionals with a comprehensive guide to help mitigate smoke intrusion and maintain healthier indoor environments, ASHRAE developed this guideline. The document outlines best practices for building design, operation and maintenance to reduce the health risks associated with prolonged exposure to wildfire and prescribed burn smoke.

Scope

Guideline 44-2024 is intended for commercial buildings, institutional facilities (including healthcare facilities and schools), multi-unit residential buildings, and designated cleaner air spaces for temporary occupancy. It offers tailored recommendations for spaces occupied by at-risk groups, such as children and the elderly, ensuring their specific needs are addressed during smoke events. The document provides considerations during the design phase for new construction as well as existing buildings. It emphasizes the importance of installing, commissioning, operating, and maintaining building envelopes, ventilation systems, and air cleaning and measurement technologies to mitigate smoke infiltration and enhance IAQ.

Highlights

- ✓ The guideline addresses the following implementation strategies:
 - **Risk Assessment and Planning:** Building professionals are encouraged to assess local wildfire risks and develop contingency plans that prioritize occupant safety by developing a Smoke Readiness Plan (SRP). A sample questionnaire to help develop the SRP is included in the guideline. Site research required for the SRP is also discussed.
 - **Sensing:** The guideline recommends the installation of PM2.5 sensors outside and inside the building to monitor the effectiveness of management strategies.
 - **Building Design Enhancements:** Recommendations include sealing building envelope leaks, employing MERV 13 filters within HVAC systems, and integrating effective air cleaning technologies (such as portable air cleaners) to reduce indoor smoke levels.
 - **Operational Measures:** The guideline suggests operating HVAC systems to minimize outdoor air flow during smoke events while maintaining positive building pressure and utilizing air-cleaning technologies to maintain IAQ.
 - **Communication and Training:** Establishing clear communication protocols and training staff to recognize air quality concerns related to wildfires are vital for effective response during smoke events.
 - **Ease of Implementation:** The guideline provides a table indicating how easy/difficult it is to apply 13 of its recommendations to 8 of the most common HVAC systems.
 - **Post-Event Procedures:** The guideline outlines protocols for assessing and restoring indoor air quality after smoke events, including flushing indoor spaces with clean air and verifying a return to typical IAQ for the space.