



ASHRAE Standard 62.1-2004
INTRODUCTION AND OVERVIEW

*Plus a few other issues: Outdoor Air Quality
and the IAQ Procedure*

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Outline

- **Background issues and compliance**
 - **Some history**
 - **Standards and codes**
 - **New and existing buildings**
- **Title, purpose, and scope (Sections 1 and 2)**
- **New definitions (Section 3)**
- **Outdoor air quality assessment (Section 4)**
- **IAQ procedure (Section 6.3)**
- **Appendices (normative vs. informative)**

Background Issues and Compliance

■ History

- First published in 1973, revisions in 1981, 1989, 1999 and 2001: recommendations, background information
- 62.1-2004, first version in mandatory, enforceable language; clarifies compliance and enforcement

■ Standards and Codes

- Standards voluntary; codes are the law
- Many codes reference older versions of standard

■ New and existing buildings

- Standard applies to all buildings, but ...
- Concern about retroactive enforcement in existing buildings
- Carefully handled in purpose and scope

Title, Purpose and Scope (TPS)

■ Title

- No change since 1981
- Proposal to replace Ventilation for Acceptable IAQ with Ventilation and Acceptable IAQ

■ Purpose

- More than just ventilation rates
- Intended for regulatory application (codes) in new buildings & major renovations; guide to IAQ in existing buildings

Title, Purpose and Scope (TPS)

■ Scope

- All enclosed spaces except low-rise residential (see ANSI/ASHRAE Standard 62.2)
- Eventually will exclude healthcare (170P), aircraft cabins (161P),, ...
- Industrial and lab spaces included, but ventilation requirements often dictated by other standards
- Acceptable IAQ is the goal of the standard, but complying with requirements may not achieve it; *Acceptable IAQ is not a requirement of standard*

New Definitions

- **Few relate directly to compliance**
- **Acceptable indoor air quality**
 - **air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.**
- **Cognizant authority (applies to IAQ Procedure)**
 - **an agency or organization that has the expertise and jurisdiction to establish and regulate concentration limits for airborne contaminants; or an agency or organization that is recognized as authoritative and has the scope and expertise to establish guidelines, limit values, or concentrations levels for airborne contaminants.**

Outdoor Air Quality (Section 4)

- Investigate (do) and document (write down)
- **Regional air quality (do)**
 - Determine status of compliance with national ambient air quality standards
 - In U.S., EPA NAAQS, compliance on web
- **Local air quality (do)**
 - Observational survey of site and surroundings to identify local contaminants of concern
- **Documentation (write down)**
 - Regional compliance status
 - Local survey information, may include: date & time, nearby facilities, odors, visible plumes, ...
 - Conclusions regarding acceptability of outdoor air

IAQ Procedure (Section 6.3)

- **Performance alternative to Ventilation Rate Procedure**
- **Previous versions of standard had no requirements**
- **“... building and its ventilation system are designed to maintain the concentrations of specific contaminants at or below certain limits identified during the building design and to achieve the design target level of perceived indoor air quality acceptability by building occupants and/or visitors.”**
- **Always an option, but must use to take credit for air cleaning and source control (Section 6.1.2)**

IAQ Procedure - Requirements

- **Identify “contaminants of concern”** for design purposes, including sources and source strengths
- **Specify concentration limits** (and reference to a cognizant authority) for each contaminant of concern
- **Specify level of occupant acceptability** with perceived IAQ in percentage expressing satisfaction
- **Acceptable design approaches:** mass balance analysis, proven success in similar buildings, validation by contaminant monitoring and occupant evaluations
- **Documentation** based on above requirements

Appendices

- **A. Multiple Zone Systems (normative):** required under Vent Rate Procedure for some designs, always an option
- **B. Summary of Air Quality Guidelines (informative):** resource when using IAQ Procedure
- **C. Rationale for ventilation requirements based on carbon dioxide (informative)**
- **D. Single zone mass balance equations (informative):** applicable to IAQ procedure, steady-state only

Appendices

- **E. Ventilation rates for health care, low-rise residential, vehicles (normative):** pending new standards
- **F. Separation of intakes and exhausts (informative):** acceptable calculation method for determining distance
- **G. Application and Compliance (informative):** explanation of application in existing buildings, sample code language for new & existing buildings

Wrap-Up

- **ANSI/ASHRAE 62.1-2004: mandatory language makes compliance possible and encourages more consistent enforcement**
- **May appear more complex because it no longer glosses over issues or provides vague recommendations**
- **Users manual will assist with more explanation of requirements and many examples (expected this summer)**