

Z9.5 - 2003 LABORATORY VENTILATION

- Format – 2 columns
- Shall vs. should
- Explanatory Letters

Scope, Purpose and Application

Laboratory Ventilation Management Program

Laboratory Chemical Hoods

Other Containment Devices

Laboratory Ventilation Systems Design

Performance Tests

Work Practices

Preventive Maintenance

Air Cleaning

Special Laboratory Areas

Appendices

SHALL

- Laboratory Management Program
- Chemical Hygiene Plan
- Responsible Person
- Hazard Assessment
- Records

NON SPECIFIC SHALLS

- Laboratory Chemical Hoods
- Volume Flow Rates (AC/HR)
- Hood Location
- Face Velocity
- Directional Airflow
- Noise
- Emergency Mode
- Work Permit

HOOD CRITERIA

Face Velocity	<u>No Specific number</u>
Minimum Exhaust Volume	25cfm.ft ² hood work surface
Flow Measuring Device	Required
Posting	Required

EXHAUST DISCHARGE

- Minimum Discharge Velocity – 3000 fpm
- Minimum Stack Height – 10 feet
- -----Except-----
- Appendix 3

The Performance Tests Shall Include:

- Exhaust Flow Measurements
- Hood Static Pressure Measurement
- Face Velocity Tests
- Auxiliary Air Velocity Tests (if applicable)
- Cross Drafts Velocity Tests
- Airflow Visualization Tests
- Tracer Gas Containment Tests

Energy Conservation Issues

- Automatic Sash Closers
- Ductless Hoods (4.2)
- Diversity (5.1.2)
- Manifolded Systems
- Recirculation of Room Exhaust Air
- Variable Air Volume Systems
- Air Change per Hour

IMC - 2000

SECTIONS 510.2 & 510.7

Interpret these sections as requiring automatic fire suppression within laboratory hood exhaust ducts.

510.2 Defines Hazardous Exhaust Systems

510.7 Requires Fire Suppression

SECTION 510.2 Hazard Exhaust System Shall be Required

1. A flammable vapor, gas, fume, mist or dust is present in concentrations exceeding 25 percent of the lower flammability limit.
2. A vapor, gas, fume, mist or dust with a health-hazard rating of 4 is present in any concentration.
3. A vapor, gas, fume, mist or dust with a health-hazard rating of 1, 2 or 3 is present in concentrations exceeding 1 percent of the median lethal concentration of the substance for acute inhalation toxicity.

SECTION 510.7 SUPPRESSION REQUIRED

Ducts shall be protected with an approved automatic fire suppression system installed in accordance with the International Building Code.

ANSI/AIHA Z9.5 - 2003

5.3.5.8 System Classification. Laboratory hood exhaust systems shall not be classified as “Hazardous Exhaust Systems”.

5.3.2.10 FIRE SUPPRESSION

Fire sprinklers shall not be installed in chemical hood exhaust.

NFPA 45 - 2000

Automatic fire protection systems shall not be required in laboratory hoods or exhaust systems.

Exception No. 1: If interiors have flame spread index >25

Exception No. 2: If hazard assessment indicates need

IMC - 2000

SECTION 510.4

Prohibiting manifolded laboratory chemical exhausts
if incompatible materials may be used.

IMC - 2000

Section 510.4: Independent System states that, “Hazardous exhaust systems shall be independent of other types of exhaust systems. Incompatible materials, as defined in the International Fire Code shall not be exhausted through the same hazardous exhaust system. Hazardous exhaust systems shall not share common shafts with other duct systems, except where such systems are hazardous exhaust systems originating in the same fire area.”

ANSI Z9.5 - 2003

5.3.2.2 Laboratory chemical hood ducts may be combined into a common manifold with the following exceptions and limitations:

NFPA 45-2000

6.5.10.2 Connection to a common laboratory hood exhaust duct system shall be permitted to occur within a building only in any of the following locations:

Status

AIHA petitioned for Laboratory exemption
IMC hung up on definition of Laboratory

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NFPA 45 – 2002

OSHA

All too vague