



Manuals.plus /

› ASHRAE /

› ASHRAE Laboratory Design Guide: Planning and Operation of Laboratory HVAC Systems, 2nd Ed. Manual

ASHRAE 1936504987

ASHRAE Laboratory Design Guide: Planning and Operation of Laboratory HVAC Systems, 2nd Ed.

Model: 1936504987

Publisher: ASHRAE

INTRODUCTION

The ASHRAE Laboratory Design Guide, 2nd Edition, serves as a comprehensive reference manual for the planning, design, and operation of laboratories. This guide is intended for engineers, owners, and system operators involved in laboratory environments.

Its primary objective is to provide strategies for reducing the laboratory's energy footprint while simultaneously ensuring safety, maintaining good comfort and indoor air quality, and protecting the integrity of laboratory experiments.



ASHRAE LABORATORY DESIGN GUIDE

Planning and Operation of Laboratory HVAC Systems

Second Edition

Comprehensive guidance on

- Loads, equipment, processes, air treatment, exhaust stack design, airflow, and balancing
- Designing for energy efficiency and sustainability
- Initial and life-cycle costs
- Operation and maintenance for safety and efficiency
- Commissioning for laboratory systems

Includes access to bonus digital tools for learning and design

Image: Front cover of the ASHRAE Laboratory Design Guide, 2nd Edition. This image displays the book's title, "The Complete Laboratory HVAC Resource," and the ASHRAE logo, indicating its focus on laboratory HVAC systems.

KEY CONTENT AREAS

The guide is structured to follow a typical project progression, covering the fundamental stages of planning, design, construction, operation, and maintenance. It provides essential background information on various laboratory types and their associated equipment, offering a foundational understanding of their functions and requirements.

Key topics addressed within the manual include:

- **Exhaust Hoods:** Design and operational considerations.
- **Primary Air Systems:** Principles and applications.
- **Process Cooling:** Techniques and system integration.
- **Air Treatment:** Methods for maintaining air quality.
- **Exhaust Stack Design:** Best practices for contaminant dispersion.
- **Airflow Patterns and System Balancing:** Ensuring proper ventilation and control.
- **Energy Recovery:** Strategies for improving energy efficiency.
- **Laboratory Commissioning Process:** Procedures for verifying system performance.
- **Economics:** Analysis of both initial and life-cycle costs.

Dedicated chapters offer guidance for specialized laboratories, including those requiring biological containment and animal research. These sections cover critical aspects such as envelope design, system reliability, redundancy, proper space pressurization, biohazard containment and control, product protection, and sanitation.

UPDATES IN THE 2ND EDITION

This second edition incorporates current industry standards and practices. Notable additions include two new chapters:

1. **High-Performance Building Design:** Concepts for achieving sustainability in laboratory environments.
2. **Airflow and Contaminant Evaluation:** Guidelines for assessing airflow patterns and contaminant concentrations using computational fluid dynamics (CFD) computer modeling.

The guide also features expanded web links to relevant industry standards and resources, along with design tools designed to illustrate laboratory features and provide practical design aids.

SPECIFICATIONS

Publisher	Ashrae
Publication Date	August 1, 2015
Edition	2nd
Language	English
Print Length	328 pages
ISBN-10	1936504987
ISBN-13	978-1936504985
Item Weight	2.32 pounds
Dimensions	8.5 x 0.75 x 10.5 inches

SUPPORT AND CONTACT INFORMATION

For further information or inquiries regarding the ASHRAE Laboratory Design Guide, please contact ASHRAE directly:

Address: 1791 Tullie Circle, Atlanta, GA 30329-2305, USA

Phone: 404-636-8400 (worldwide)

Website: www.ashrae.org