



# AMERICAN NATIONAL STANDARD

*ANSI/ASSE Z9.11 – 2016*  
*Laboratory Decommissioning*

ANSI/ASSE Z9.11 – 2016



AMERICAN SOCIETY OF  
SAFETY ENGINEERS

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**American National Standard**

**Laboratory Decommissioning**

Secretariat

**American Society of Safety Engineers**  
520 N. Northwest Highway  
Park Ridge, Illinois 60068

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## **Foreword** (This Foreword is not a part of American National Standard Z9.11-2016.)

Modern laboratory facilities may require periodic renovation or even demolition. Before this can be done safely, the facility must be properly decommissioned in order to prepare it for future occupancy. Both the past use and the prospective function of the space will determine the degree of decommissioning. Therefore, a risk-based approach is necessary to control the parameters of the decontamination process – whether the space will be used as another research laboratory or a non-laboratory space, such as a daycare center or office suite.

The Z9.11 subcommittee was chartered to develop guidelines on decommissioning a research laboratory whenever laboratory spaces are to be renovated or demolished, with a special emphasis on the risk assessment process. This is difficult because of the wide variety of materials, chemicals, equipment and processes that are used and conducted in laboratories. Thus, the focus of this standard is to provide a process for determining what actions are necessary to properly decommission a laboratory given its current and potential future use. The standard also provides a model to follow to accomplish the desired result. Where possible, specific guidance is provided as an example. The following American National Standard is the product of this subcommittee's efforts.

Decommissioning a work site requires standardized processes, strategies and validation methods for rapid screening and characterization of hazardous debris and other regulated waste streams and for compliance with hazardous waste regulations. Baselines for decommissioning must be established for the types of contamination that will be evaluated, the types of equipment that will be tested, safe levels of contamination and how far to look for contaminants. Strategies to minimize generation of regulated wastes, to encourage onsite treatment and decontamination technologies and to maximize recycling/recovery of materials from debris must also be considered. Other essential factors to consider are a cost-benefit analysis of decontamination and recycling versus disposal without decontamination, and the life cycle design of laboratories and selection of construction materials to facilitate eventual deconstruction.

### **How to Read This Standard**

The standard is presented in a two-column format. The left column presents the requirements of the standard; the right column provides clarification and explanation of the requirements plus “how to comply” information.

This standard also contains Appendices, which are informative and are not considered a mandatory part of this standard.

This standard is not meant to be all encompassing. Rather, it establishes minimum acceptable criteria for completing the decommissioning process and documenting the necessary information for regulatory and historical purposes. It is somewhat general in nature so that it can be applied to any research laboratory. We hope, however, that future versions will continue to expand and amplify these concepts as additional experience is gained.

Suggestions for improvement of this standard are welcome. They should be sent to the American Society of Safety Engineers, 520 N. Northwest Highway, Park Ridge, Illinois 60068.

This standard was processed and approved for submittal to ANSI by the Z9 Accredited Standards Committee on Health and Safety Standards for Ventilation Systems. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the Z9 Committee had the following members:

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## AMERICAN NATIONAL STANDARD Z9.11 LABORATORY DECOMMISSIONING

### STANDARD REQUIREMENTS

### EXPLANATORY INFORMATION

*(Not part of American National  
Standard Z9.11)*

#### 1. EXECUTIVE SUMMARY

Decommissioning is a process to ensure a facility and its associated infrastructure meet environmental health and safety requirements for its next use. Its next use could be similar to its previous use as a laboratory or it could be vastly different, such as a daycare center. Construction or renovation is also defined as next use. For research laboratories, a risk-based approach to decommissioning is recommended. This process assumes that laboratories are inherently safe environments where hazardous materials are used with safeguards that protect human health and the environment, and that extraordinary decommissioning methods may only be necessary for situations that present unusual risks.

This standard provides a strategy to perform a risk assessment of a research space and to make that space safe and ready for the demolition worker to begin work and/or for the next occupant to use the space. Additionally, consideration is given to appropriate management of the waste materials through a remediation plan process and a description of remediation plan elements.

This standard addresses approaches for dealing with common contaminants and waste management and provides details for managing the presence of extremely hazardous materials or exceptional circumstances.

This standard provides general guidance to develop a decommissioning plan that meets the needs of the institution.

Stakeholders include project managers and others who may not be familiar with the

regulations. Recommendations are included for risk assessment resource materials that address risks not specifically covered in the standard.

This standard:

- Provides an overarching roadmap for the research laboratory decommissioning process that can assist an institution in developing its own decommissioning plan;
- Assists in determining levels of risk assessment that are needed for a research laboratory decommissioning;
- Provides a standard generic enough to develop a decommissioning plan for a research laboratory of any size and provides references, tables and other resource information to assist the user in assessing the risk level of the project;
- Identifies tools that need to be developed to decommission a research laboratory; and
- Identifies roles and responsibilities for stakeholders.

The criteria contained herein shall be supplemented, expanded or consolidated as required to adapt to the specific decommissioning effort, the organization and the specific regulatory and policy requirements which may apply in each case.

## **2. SCOPE**

Hazardous materials identified or generated from the facility decommissioning process are subject to intense regulation and present significant potential liabilities. The need to improve characterization and management of these wastes is a primary driver for development of improved decommissioning strategies.

Research laboratory facilities and their associated spaces pose unique decommissioning concerns because of the nature of the use of workspace. The intent of this standard is to address a decommissioning