



Standard Guide for Calibration Facility Setup for Nuclear Surface Gauges¹

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1. Scope*

1.1 This guide outlines procedures for setup of a nuclear gauge calibration facility in either a shielded bay or an unshielded area—Guide A and Guide B, respectively.

1.2 This guide does not attempt to describe the calibration techniques or methods. It is assumed that this guide will be used by persons familiar with the operations of the gauge and in performing proper calibration, service and maintenance.

1.3 This guide does not attempt to address maintenance or service procedures related to the gauge.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.5 *This guide does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this guide to establish appropriate safety, and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document has been approved through ASTM consensus process.*

1.7 *All observed and calculated values shall conform to the guidelines for significant digits and rounding established in practice D6026.*

1.7.1 *The method used to specify how data are collected, calculated, or recorded in this standard is not directly related to the accuracy to which the data can be applied in the design or other uses, or both. How one applies the results obtained using this standard is beyond its scope.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D6026 Practice for Using Significant Digits in Geotechnical Data

D6938 Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

3. Terminology

3.1 For definitions of common technical terms in this standard, refer to Terminology **D653**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cinder block*—a hollow building block made with concrete and coal cinders.

3.2.2 *high density concrete blocks*—solid concrete blocks designed for areas requiring radiation shielding.

3.2.3 *safe position*—position of the density source during the standardization process of the gauge.

3.2.4 *shielded calibration bay*—an enclosed area surrounded by walls in order to reduce background radiation to an acceptable level.

3.2.5 *shielded storage bay*—an enclosed area with sufficient shielding material to maintain and control radiation background in the facility and to reduce influences from stored gauges.

¹ This guide is under the jurisdiction of ASTM Committee **D18** on Soil and Rock and is the direct responsibility of Subcommittee **D18.08** on Special and Construction Control Tests.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.