



Designation: D7663 – 12 (Reapproved 2024)

Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluations¹

This standard is issued under the fixed designation D7663; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 *Purpose*—This practice covers standardized techniques for actively collecting soil gas samples from the vadose zone beneath or near dwellings and other buildings.

1.2 *Objectives*—Objectives guiding the development of this practice are: (1) to synthesize and put in writing good commercial and customary practice for active soil gas sampling, (2) to provide an industry standard for soil gas sampling performed in support of vapor intrusion evaluations that is practical and reasonable.

1.3 This practice allows a variety of techniques to be used for collecting soil gas samples because different techniques may offer certain advantages for specific applications. Three techniques are presented: sampling at discrete depths, sampling over a small screened interval, and sampling using permanent vapor monitoring wells.

1.4 Some of the recommendations require knowledge of pressure differential and tracer gas concentration measurements.

1.5 The values stated in SI units shall be regarded as standard. Other units are shown for information only.

1.6 This practice does not address requirements of any local, regional, state, provincial, or national regulations or guidance, or both, with respect to soil gas sampling. Users are cautioned that local, regional, state, provincial, or national guidance may impose specific requirements that differ from those of this practice.

1.7 *This standard 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 standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace

education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM practice 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 means only that the document has been approved through the ASTM consensus process.

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards*:²

D653 [Terminology Relating to Soil, Rock, and Contained Fluids](#)

D854 [Test Methods for Specific Gravity of Soil Solids by the Water Displacement Method](#)

D1356 [Terminology Relating to Sampling and Analysis of Atmospheres](#)

D1946 [Practice for Analysis of Reformed Gas by Gas Chromatography](#)

D2216 [Test Methods for Laboratory Determination of Water \(Moisture\) Content of Soil and Rock by Mass](#)

D2487 [Practice for Classification of Soils for Engineering Purposes \(Unified Soil Classification System\)](#)

D3404 [Guide for Measuring Matric Potential in Vadose Zone Using Tensiometers](#) (Withdrawn 2024)³

D4696 [Guide for Pore-Liquid Sampling from the Vadose Zone](#)

D4700 [Guide for Soil Sampling from the Vadose Zone](#) (Withdrawn 2024)³

¹ This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.21 on Groundwater and Vadose Zone Investigations.

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

³ The last approved version of this historical standard is referenced on www.astm.org.