



Standard Practice for Using Hollow-Stem Augers for Geotechnical Exploration and Soil Sampling¹

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1. Scope

1.1 This practice covers how to obtain soil samples using Hollow-Stem Auger (HSA) sampling systems and use of hollow-stem auger drilling methods for geotechnical exploration. This practice addresses how to obtain soil samples suitable for engineering properties testing.

1.2 In most geotechnical explorations, Hollow-Stem Auger (HSA) drilling is combined with other sampling methods. Split barrel penetration tests (Test Method **D1586**) are often performed to provide estimates of engineering properties of soils. Thin-wall tube (Practice **D1587**) and ring-lined barrel samples (Practice **D3550**) are also frequently taken. This practice discusses hole preparation for these sampling events. For information on the sampling process, consult the related standards. Other in situ tests, such as the vane shear Test Method **D2573**, can be performed below the base of the boring by access through the drill string. Other drilling methods are summarized in Guide **D6286**. Practice **D1452** describes solid stem augers.

1.3 This practice does not include considerations for geoenvironmental site characterizations and installation of monitoring wells which are addressed in Guide **D5784**.

1.4 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 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 practice means only that the document has been approved through the ASTM consensus process.

1.5 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice **D6026**, unless superseded by this standard.

1.6 The values stated in either inch-pound units or SI units [presented in brackets] 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.

1.7 Hollow-stem auger drilling for geotechnical exploration often involves safety planning, administration, and documentation. This standard does not purport to specifically address exploration and site safety. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to its use. *Performance of the test usually involves use of a drill rig, therefore, safety requirements as outlined in applicable safety standards, for example OSHA (Occupational Health and Safety Administration) regulations, DCDMA safety manual (1),² drilling safety manuals, and other applicable state and local regulations must be observed.*

2. Referenced Documents

2.1 ASTM Standards:³

D420 **Guide to Site Characterization for Engineering Design and Construction Purposes** (Withdrawn 2011)⁴

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)

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

² The boldface numbers in parentheses refer to the references at the end of this practice.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

¹ This practice is under the jurisdiction of ASTM Committee **D18** on Soil and Rock and is the direct responsibility of Subcommittee **D18.02** on Sampling and Related Field Testing for Soil Evaluations.

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