



Standard Guide for Vegetative (Green) Roof Systems¹

This standard is issued under the fixed designation E2777; 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 This guide identifies terminology, principles and fundamental concepts including those related to sustainability, technical requirements of construction, and types of vegetative (green) roof systems used on buildings.

1.2 The considerations for sustainable development relative to vegetative (green) roof systems are categorized as follows: environmental, social, and economic as consistent with Guide E2432. (See [Appendix X1](#).)

1.3 This guide discusses technical requirements for vegetative (green) roof systems pertaining to the following categories: plants, media, wind scour resistance, soil reinforcement, separation or filter layers, drain layers, water retention layers, protection layers, and root penetration barriers.

1.4 This guide addresses intensive and extensive vegetative (green) roof systems for roofs up to 15 % slope. Roofing/waterproofing membranes and insulation are key components of vegetative (green) roof systems, but technical requirements regarding their role in such roof systems is beyond the scope of this guide.

NOTE 1—ASTM Technical Committees [D08](#) and [C16](#) have jurisdiction over the development of standards for roofing/waterproofing membranes and insulations, respectively. Some of their existing standards may be helpful in the evaluation of membranes and insulation used in vegetative (green) roof systems. As these two committees develop standards for such roofs, this guide will be revised appropriately.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.6 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:^{2,3}

- [C88](#) Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
- [D1079](#) Terminology Relating to Roofing and Waterproofing
- [D1987](#) Test Method for Biological Clogging of Geotextile or Soil/Geotextile Filters
- [D2974](#) Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
- [D3786/D3786M](#) Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
- [D4354](#) Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing
- [D4439](#) Terminology for Geosynthetics
- [D4491](#) Test Methods for Water Permeability of Geotextiles by Permittivity
- [D4595](#) Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method
- [D4716/D4716M](#) Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
- [D4751](#) Test Method for Determining Apparent Opening Size of a Geotextile
- [D4759](#) Practice for Determining the Specification Conformance of Geosynthetics
- [D4873](#) Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
- [D5262](#) Test Method for Evaluating the Unconfined Tension Creep and Creep Rupture Behavior of Geosynthetics
- [D5617](#) Test Method for Multi-Axial Tension Test for Geosynthetics
- [D5818](#) Practice for Exposure and Retrieval of Samples to Evaluate Installation Damage of Geosynthetics
- [D6637](#) Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method
- [D7361](#) Test Method for Accelerated Compressive Creep of Geosynthetic Materials Based on Time-Temperature Superposition Using the Stepped Isothermal Method

¹ This guide is under the jurisdiction of ASTM Committee [D08](#) on Roofing and Waterproofing and is the direct responsibility of Subcommittee [D08.24](#) on Sustainability.

Current edition approved May 1, 2014. Published June 2014. DOI: 10.1520/E2777-14

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.

³ Whenever a specific version of a standard is not identified, the most recent edition of the standard shall apply.