



Standard Practice for Compaction of Prismatic Asphalt Specimens by Means of the Shear Box Compactor¹

This standard is issued under the fixed designation D7981; 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 practice covers the fabrication of prismatic specimens of asphalt mixture using the Shear Box Compactor (SBC). Compacted specimens are suitable for volumetric and physical property testing. This standard practice should not be used for acceptance or rejection of a material or for purchasing purposes.

1.2 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard with exception of degrees ($^{\circ}$) where angle is specified.

1.3 *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.*

1.4 *The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.*

2. Referenced Documents

2.1 ASTM Standards:²

- D1188 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
- D2041 Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- D2726 Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
- D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
- D6752 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method

¹ This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.20 on Mechanical Tests of Asphalt Mixtures.

Current edition approved Aug. 1, 2015. Published September 2015. DOI: 10.1520/D7981-15.

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.

D6857 Test Method for Maximum Specific Gravity and Density of Bituminous Paving Mixtures Using Automatic Vacuum Sealing Method

D6925 Test Method for Preparation and Determination of the Relative Density of Asphalt Mix Specimens by Means of the Superpave Gyratory Compactor

E644 Test Methods for Testing Industrial Resistance Thermometers

2.2 AASHTO Standards:³

AASHTO TP79 Standard Method of Test for Determining the Dynamic Modulus and Flow Number for Hot Mix Asphalt (HMA) Using the Asphalt Mixture Performance Tester

AASHTO T321 Standard Method of Test for Determining the Fatigue Life of Compacted Hot Mix Asphalt (HMA) Subjected to Repeated Flexural Bending

AASHTO T342 Standard Method of Test for Determining Dynamic Modulus of Hot Mix Asphalt Concrete Mixtures

3. Terminology

3.1 Definitions:

3.1.1 *load cycle*—the angular movement of the shearing platens in the compactor going from the vertical position to the position of maximum shear angle at one side, then going to the maximum shear angle at the other side and back to the vertical position ($90 \pm 0.25^{\circ}$ with reference to the horizontal plane).

3.1.2 *shear angle*—the external angle measured between a vertical plane (angle of 90° with respect to a horizontal plane) and the plane formed by a shearing plate in the compactor when it has reached its maximum travel. Set at 4° .

4. Summary of Practice

4.1 A sample of loose asphalt mixture is compacted in a fully automatic apparatus by the combination of a static vertical force and a horizontal cyclic shear force applied to twin vertical parallel platens up to a fixed maximum shear angle, to produce a prismatic specimen of compacted asphalt to

³ Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, <http://www.transportation.org>.