



Standard Specification for Preparation and Verification of Clay Blocks Used in Ballistic-Resistance Testing of Torso Body Armor¹

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^ε¹ NOTE—Editorial corrections made throughout in August 2016.

INTRODUCTION

At the time when work on this specification was undertaken, different ballistic-resistant body armor test protocols required different impactors for verification of the clay blocks placed behind the test items, and the lack of detailed guidance about the clay blocks resulted in different practices for preparation and verification. To improve laboratory-to-laboratory consistency, major stakeholders sought to harmonize practices related to the preparation and verification of the clay blocks used for testing of ballistic-resistant body armor.

1. Scope

1.1 The purpose of this specification is to provide a standardized method for preparation and verification of backing assemblies used in ballistic-resistant torso body armor testing and to reduce variability within and between laboratories.

1.2 The backing assembly is a clay block that contains *ROMA Plastilina No. 1*®² clay as the backing material. The clay serves as a witness material and provides a measurable indication of test item performance.

1.3 This specification is primarily directed toward test laboratories but may be applicable to body armor manufacturers, researchers, and end users performing ballistic-resistance testing of body armor.

1.4 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to non-SI units that are provided for information only.

1.5 *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*:³

E3005 Terminology for Body Armor

2.2 *NIST Standard*:⁴

NIST Special Publication 330 The International System of Units (SI), 2008 Edition, Barry N. Taylor and Ambler Thompson, Editors

3. Terminology

3.1 The terms and definitions of Terminology **E3005** apply for the following terms: *backing assembly*, *backing fixture*, *backing material* and *test item*.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *backing assembly*, *n*—a backing fixture filled with backing material. For example, a clay block is a type of a backing assembly.

3.2.2 *backing fixture*, *n*—any apparatus designed to hold or contain the backing material(s) for a specific test.

3.2.3 *backing material*, *n*—the substance placed behind the test item during testing which is intended to be a witness material and which may provide a measurable indication of test item performance.

3.2.4 *bridge gauge*, *n*—an assembly used for measuring that consists of a depth gauge and supports that rest on opposite sides of the backing fixture.

¹ This specification is under the jurisdiction of ASTM Committee E54 on Homeland Security Applications and is the direct responsibility of Subcommittee E54.04 on Personal Protective Equipment (PPE).

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² U.S. Government standards require ROMA Plastilina No. 1®, from Sculpture House, Inc., as the backing material for ballistic-resistance testing.

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 Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, <http://www.nist.gov>.