



Designation: F1642/F1642M – 17

Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings¹

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INTRODUCTION

Historical records show that fragments from glazing that have failed as the result of intentional or accidental explosions present a serious threat of personal injury. Glazing failure also allows blast pressure to enter the interior of buildings thus resulting in additional threat of personal injury and facility damage. These risks increase in direct proportion to the amount of glazing used on the building facade. This test method addresses only glazing and glazing systems. It assumes that the designer has verified that other structural elements have been adequately designed to resist the anticipated airblast pressures.

1. Scope

1.1 This test method sets forth procedures for the evaluation of hazards of glazing or glazing systems against airblast loadings. The specifying authority shall provide the airblast loading parameters. Glazing systems shall be as defined in Specification F2912.

1.2 The data obtained from testing under this method shall be used to determine the glazing, glazing system, or glazing retrofit system hazard rating using Specification F2912.

1.3 This test method allows for glazing to be tested and rated with or without framing systems.

1.4 This test method is designed to test and rate all glazing, glazing systems, and glazing retrofit systems including, but not limited to, those fabricated from glass, plastic, glass-clad plastics, laminated glass, glass/plastic glazing materials, organic coated glass, and other glazing retrofit systems not directly attached to the glazing or glazing system such as blast curtains, cables, shades, and architectural mesh.

1.5 *Units*—The values stated in either SI units or inch-pound units 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 nonconformance with the standard. For conversion of quantities in various systems of measurements to SI units, see Specification E699.

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.* See Section 7 for specific hazards statements.

2. Referenced Documents

2.1 *ASTM Standards*:²

E699 Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components

E997 Test Method for Evaluating Glass Breakage Probability Under the Influence of Uniform Static Loads by Proof Load Testing

F2912 Specification for Glazing and Glazing Systems Subject to Airblast Loadings

2.2 *ISO Standard*:

ISO/IEC International Standard 17025 General Requirements for the Competence of Testing and Calibration Laboratories

2.3 *ANSI Standard*:

SI 10 American National Standard for Use of the International System of Units (SI): The Modern Metric System

3. Terminology

3.1 *Definitions*:

3.1.1 *airblast pressure, n*—pressure increase that a surface experiences due to the detonation of an explosive charge.

¹ This test method is under the jurisdiction of ASTM Committee F12 on Security Systems and Equipment and is the direct responsibility of Subcommittee F12.10 on Systems Products and Services.

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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.