



Standard Test Methods for Performance of Glazing in Permanent Railing Systems, Guards, and Balustrades¹

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1. Scope

1.1 These test methods cover procedures to be followed in testing the performance of glazing in permanent railing systems, guards and balustrades including components such as rails and swing gates or other forms of required guardrail opening protection installed in and for assembly, commercial, educational, industrial, institutional, stadiums, recreational, and residential buildings and other structures such as towers or elevated platforms.

1.2 These test methods are applicable to such railing, guard, and balustrade systems having glass or other glazing materials as the major structural component or the infill panel including swing gates and other forms of guardrail protection.

1.3 These test methods can be used to determine whether permanent rails, guards and balustrades including components, having glass or other glazing material comply with requirements of performance specifications, codes, norms, and standards.

1.4 Specifically, these test methods cover procedures for determining the static strength, impact performance, and post-breakage characteristics of railing systems, guards, and balustrades, including a component with glass or other glazing material installed in one, two, three and four-side support systems fastened to concrete, masonry, wood, metal, and related products.

1.5 No consideration is given in these test methods to any possible deterioration of the railing, guard, or balustrade system or their connections and fasteners as resulting from adverse environmental or in-service conditions. The performance of special tests covering this aspect may be desirable.

1.6 These test methods are limited to the application of loads and impact resistance described herein. Whenever uniformly distributed loads are to be resisted by a railing system, guard, or balustrade in accordance with governing

specifications, codes, norms, and standards, the effects of such loads on the member stresses shall be determined by calculation and the corresponding concentrated and linear loads shall be tested. Should computations make it possible to provide the needed information, testing can be employed for verification.

1.7 These test methods address the capability of glass or other glazing material supported by rails, guards, or balustrades, or both, in one, two, three, and four-sided support systems to continue in their function as a barrier by remaining in the designed framing system after impact or glazing breakage. These test methods do not address structural limitation of glazed or glass rails, guards, and balustrades or vehicular guards except when in the area of a pedestrian walkway.

1.8 All values are stated in SI units and are to be regarded as standard. Values given in parentheses are for information only. Certain values contained in reference documents cited and quoted herein may be stated in inch-pound units and must be converted by the user.

1.9 *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

- E329 Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- E631 Terminology of Building Constructions
- E699 Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components
- E935 Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings
- E1481 Terminology of Railing Systems and Rails for Buildings

¹ These test methods are under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.56 on Performance of Railing Systems and Glass for Floors and Stairs.

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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.