



Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass¹

This standard is issued under the fixed designation C1048; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

ε¹ NOTE—Section 9 was updated editorially in November 2012.

1. Scope

1.1 This specification covers the requirements for monolithic flat heat-strengthened and fully tempered coated and uncoated glass produced on a horizontal tempering system used in general building construction and other applications.

1.2 This specification does not address bent glass, or heat-strengthened or fully tempered glass manufactured on a vertical tempering system.

1.3 The dimensional values stated in SI units are to be regarded as the standard. The units given in parentheses are for information only.

1.4 The following safety hazards caveat pertains only to the test method portion, Section 10, of this specification: *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}

C162 Terminology of Glass and Glass Products

C346 Test Method for 45-deg Specular Gloss of Ceramic Materials

C724 Test Method for Acid Resistance of Ceramic Decorations on Architectural-Type Glass

C978 Test Method for Photoelastic Determination of Residual Stress in a Transparent Glass Matrix Using a

Polarizing Microscope and Optical Retardation Compensation Procedures

C1036 Specification for Flat Glass

C1203 Test Method for Quantitative Determination of Alkali Resistance of a Ceramic-Glass Enamel

C1279 Test Method for Non-Destructive Photoelastic Measurement of Edge and Surface Stresses in Annealed, Heat-Strengthened, and Fully Tempered Flat Glass

C1376 Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass

E1300 Practice for Determining Load Resistance of Glass in Buildings

2.2 *ANSI Standard:*

Z97.1 Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings⁴

2.3 *Other Documents:*

CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Materials⁵

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology C162 and Specification C1036.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bow, n*—the deviation in flatness of a lite of glass, expressed over the entire width or length dimension of the glass or over a smaller, local area (see 10.7 for measurement technique). Also known as *warp*.

3.2.2 *heat-treated glass, n*—a term used to reference both heat-strengthened and fully tempered glass.

3.2.3 *heat-treating, v*—the process of heating and cooling annealed glass in a tempering system to produce either heat-strengthened or fully tempered glass.

¹ This specification is under the jurisdiction of ASTM Committee C14 on Glass and Glass Products and is the direct responsibility of Subcommittee C14.08 on Flat Glass.

Current edition approved March 15, 2012. Published May 2012. Originally approved in 1985. Last previous edition approved in 2004 as C1048 – 04. DOI: 10.1520/C1048-12E01.

² Reference to these documents shall be the latest issue unless otherwise specified by the authority applying this specification.

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 American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036, and the Accredited Standards Committee Z97 website in electronic format at www.ansiz97.com.

⁵ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.