UL 972

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Burglary Resisting Glazing Material

Underwriters Laboratories Inc. (UL)
333 Pfingsten Road
Northbrook, IL 60062-2096

UL Standard for Safety for Burglary Resisting Glazing Material, UL 972

Sixth Edition, Dated November 27, 2006

Summary of Topics

The new edition of UL 972 includes a re-organization of the standard, reduction of number of samples required for testing, addition of marking requirements for suitability of glazing material for indoor use, product marking requirements recording the date of manufacture and an update of the ANSI approval.

UL Standards for Safety are developed and maintained in the Standard Generalized Markup Language (SGML). SGML -- an international standard (ISO 8879-1986) -- is a descriptive markup language that describes a document's structure and purpose, rather than its physical appearance on a page. Due to formatting differences resulting from the use of UL's new electronic publishing system, please note that additional pages (on which no requirements have been changed) may be included in revision pages due to relocation of existing text and reformatting of the Standard.

The following table lists the future effective dates with the corresponding reference.

Future Effective Date	References
November 27, 2008	Paragraphs 7.4 and 7.5

The new and/or revised requirements are substantially in accordance with UL's Proposal(s) on this subject dated December 2, 2005.

As indicated on the title page (page 1), this UL Standard for Safety is an American National Standard. Attention is directed to the note on the title page of this Standard outlining the procedures to be followed to retain the approved text of this ANSI/UL Standard.

The UL Foreword is no longer located within the UL Standard. For information concerning the use and application of the requirements contained in this Standard, the current version of the UL Foreword is located on ULStandardsInfoNet at: http://ulstandardsinfonet.ul.com/ulforeword.html

The master for this Standard at UL's Northbrook Office is the official document insofar as it relates to a UL service and the compliance of a product with respect to the requirements for that product and service, or if there are questions regarding the accuracy of this Standard.

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New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if

the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing, Recognition and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

This Standard consists of pages dated as shown in the following checklist:

Page	Date
1-8	November 27, 2006

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UL 972

Standard for Burglary Resisting Glazing Material

First Edition – June, 1972
Second Edition – March, 1978
Third Edition – June, 1984
Fourth Edition – March, 1995
Fifth Edition – December, 2002

Sixth Edition

November 27, 2006

The most recent designation of ANSI/UL 972 as an American National Standard (ANSI) occurred on November 27, 2006.

This ANSI/UL Standard for Safety, which consists of the Sixth Edition dated November 27, 2006 is under continuous maintenance, whereby each revision is ANSI approved upon publication.

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this Standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements. Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at http://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements cover clear, translucent, or opaque glazing material intended for indoor and outdoor use principally as a substitute for plate glass show windows or show case panels.

1.2 The material is intended to resist burglarious attacks of the ″hit and run″ type.

1.3 These requirements do not cover the glazing (mounting) methods used for the installation of burglary resisting glazing material.

2 Units of Measurement

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

CONSTRUCTION

3 General

3.1 There shall be no defects or visible imperfections in the finished product that may impair its serviceability.

PERFORMANCE

4 General

4.1 Representative samples of each construction of glazing material are to be subjected to the following tests.

4.2 Samples of each construction, each measuring 24 by 24 inches (610 by 610 mm), are to be used.

5 Sample Conditioning

5.1 General

5.1.1 For the thermal conditioning procedures, all samples are to be conditioned at the specified temperatures for at least 4 hours prior to the applicable impact test.

5.2 Thermal conditioning tests for outdoor use

5.2.1 Three samples of the material are to be conditioned at a temperature of 120°F (49°C).

5.2.2 Three additional samples are to be conditioned at a temperature of 14°F (minus 10°C).

5.3 Thermal conditioning tests for indoor use

5.3.1 Three samples of the material are to be conditioned at a temperature of 95°F (35°C).

5.3.2 Three additional samples are to be conditioned at a temperature of 55°F (13°C).

6 Impact Tests

6.1 General

6.1.1 Where thermal conditioning procedures are specified, samples are to be tested immediately upon removal from the thermal conditioning chamber. The samples of the glazing material are to be mounted horizontally in a frame so as to provide uniform clamping on all four edges of the material and an unsupported area of 22 by 22 inches (560 by 560 mm). See 6.1.2.

6.1.2 The frame is to be constructed of 2-inch (51-mm) steel angles, at least 1/4 inch (6.4 mm) thick, welded at all four corners to form a rigid square. The square is to be supported by steel members, at least 8 inches (205 mm) high, at each of the four corners. The entire assembly is to be mounted on a solid wood platform formed of 3/4-inch (19.1-mm) plywood. The four clamping members are to be of the same angle steel as used in the frame.

6.1.3 The part of the frame and clamping members that come in contact with the test sample are to be lined with hardwood stripping. The wood, in turn, is to be covered with rubber or felt stripping approximately 1/8 inch (3.2 mm) thick. At least two clamps are to be used on each of the four sides to secure the test sample between the frame and the clamping members.

6.1.4 The impacts are to be conducted using a 3-1/4 inch (83 mm) diameter smooth hardened-steel ball weighing 5 lbs (2.3 kg).

6.1.5 During the Ball impact test, Section 6.2; Outdoor use impact test, Section 6.3; and the Indoor use impact test, Section 6.4, the steel ball is to be released so as to strike each sample successively at five different locations within a 5-inch (127-mm) diameter circle, the center of which is to be located at the approximate center of the sample.

6.1.6 Except for retrieving the steel ball, or resecuring the clamps, the test sample is not to be disturbed until the specified number of impacts have been conducted.

6.1.7 During the Ball impact test, Section 6.2; Outdoor use impact test, Section 6.3; and the Indoor use impact test, Section 6.4, if the steel ball falls outside of the 5-inch (127-mm) diameter circle or if the test sample is damaged in handling, the results are to be considered inconclusive and the test(s) is to be repeated using a reserve sample.

6.1.8 The steel ball shall not penetrate the glazing material:

a) On any one of the five impacts on three samples tested as specified in Sections 6.2, 6.3, and 6.4, or

b) On any of the single impacts on the three samples tested during the High-energy impact test, Section 6.5.

Penetration is considered to occur if the ball passes completely through the glazing material.

6.1.9 If one of the three samples tested in 6.1.8(a) should fail, three additional samples shall be tested. If the three additional samples pass, the results are acceptable. If one of the three additional samples should fail, results are not acceptable.

6.1.10 If two of the three samples tested in 6.1.8(a) should fail, the results are not acceptable.

6.2 Ball impact test

6.2.1 The glazing material shall withstand five 50-foot-pound (68-J) impacts, as produced by dropping the steel ball specified in 6.1.4 through a vertical distance of 10 feet (3 m).

6.2.2 The test is to be conducted on three samples of the glazing material maintained at room temperature, 70 – 80°F (21 – 27°C).

6.3 Outdoor use impact test

6.3.1 After thermal conditioning as specified in 5.2.1 and 5.2.2, each of the samples shall withstand five 40-foot-pound (54-J) impacts, as produced by dropping the steel ball described in 6.1.4 through a vertical distance of 8 feet (2.4 m) as described in 6.1.5.

6.4 Indoor use impact test

6.4.1 After thermal conditioning as specified in 5.3.1 and 5.3.2, each of the samples shall withstand five 50-foot-pound (68-J) impacts, as produced by dropping the steel ball described in 6.1.4 through a vertical distance of 10 feet (3 m) as described in 6.1.5.

6.5 High-energy impact test

6.5.1 The glazing material shall withstand one 200-foot-pound (270-J) impact, as produced by dropping the steel ball described in 6.1.4 through a vertical distance of 40 feet (12.1 m).

6.5.2 The test is to be conducted on three samples of the glazing material maintained at room temperature, 70 – 80°F (21 – 27°C).

MARKINGS

7 General

7.1 The finished glazing material panel shall be plainly marked with the manufacturer's or private labeler's identification or a distinctive catalog number or the equivalent by which the product may be readily identified.

7.2 The marking may be located on the protective covering or package of the glazing material panel(s) as shipped from the factory.

7.3 If a manufacturer produces glazing material at more than one factory, each finished glazing material panel shall have a distinctive marking to identify it as the product of a particular factory.

7.4 Burglary resisting glazing material intended for indoor use only, shall be marked to indicate that condition of use.

7.4 effective November 27, 2008

7.5 Burglary resisting glazing material shall be marked with the date of manufacture. The date marking shall include the week, month, or quarter, and the year, any of which may be abbreviated or in an established or otherwise traceable code. A date code marking shall not repeat in less than 20 years.

7.5 effective November 27, 2008

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