MIL-G-3787G
20 September 1976
SUPERSEDING
MIL-G-3787F
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MILITARY SPECIFICATION

GLASS, LAMINATED, FLAT; (EXCEPT AIRCRAFT)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers flat laminated glass for use on military equipment, except aircraft.

1.2 Classification. The flat laminated glass covered by this specification shall be of the following classes and types, the sizes and thicknesses of which shall be as specified (see 6.2).

Class 1 - Laminated glass from polished plate or float glass plies.

Type I - Clear (colorless).
Type II - One or more plies tinted light green color.

Class 2 - Laminated glass from clear sheet glass plies.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

DD-G-451 - Glass, Flat and Corrugated, for Glazing, Mirrors, and Other Uses.
UU-P-268 - Paper, Kraft, Wrapping.
PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
PPP-F-320 - Fiberboard, Corrugated and Solid, Sheet Stock (Container Grade) and Cut Shapes.

MILITARY

MIL-P-116 - Preservation, Packaging, Methods of.

FSC 9340

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Army Materials and Mechanics Research Center, Watertown, MA 02172 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

STANDARDS

FEDERAL
Fed. Std. No. 356 - Commercial Packaging of Supplies and Equipment.

MILITARY
MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN STANDARD SAFETY CODE

Z26.1-1966 (R 1973) - Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

3. REQUIREMENTS

3.1 Preproduction inspection. When specified by the procuring activity the laminated glass furnished to this specification shall be subject to preproduction inspection prior to submission of lots for acceptance inspection.

3.2 Materials. The flat laminated glass shall consist of two or more sheets of glass conforming to DD-G-451 (see 3.2.1 and 3.2.2), held together by one or more plies of transparent plastic with adequate bonding characteristics. Unless otherwise approved by the procuring activity, the plastic shall be polyvinylbutyral. The use of cellulose nitrate or cellulose acetate will not be permitted.

3.2.1 Class 1. Class laminated glass shall be polished plate or float glass conforming to type I, class 1, glazing quality of DD-G-451.

3.2.2 Class 2. Class 2 laminated glass shall be clear sheet glass conforming to type II, class 1, A quality of DD-G-451.

3.3 Dimensions. The laminated glass shall be furnished in the size and pattern specified (see 6.2).

3.3.1 Tolerances.

3.3.1.1 Thickness. Unless otherwise specified by the procuring activity (see 6.2), the thickness of class 1 laminated glass shall be within the overall range of 15/64 to 19/64 inch and the thickness of class 2 laminated glass shall be within the overall range of 13/64 to 5/16 inch. The individual sheet thickness ranges for class 2 glass shall be 0.085 to 0.101 inch for single strength and 0.115 to 0.134 inch for double strength material. Unless otherwise specified by the procuring activity (see 6.2), individual finished pieces shall vary not more than 1/32 inch from the thickest to the thinnest part. The polyvinylbutyral plastic interlayer for class 1 and class 2 laminated glass shall be 0.030 inch nominal thickness with tolerances of -0.001 and +0.002 inch.

3.3.1.2 Length and width. Tolerances on length and width of cut laminated glass shall be ± 1/32 inch for sizes up to 24 by 36 inches inclusive and ± 1/16 inch for larger sizes, unless otherwise specified by the procuring activity (see 6.2). Permissible offset or slippage of plies in laminating shall be ± 1/32 inch for uncut sheets to 24 by 36 inches, ± 1/16 inch for sheets to 36 by 48 inches and ± 3/32 inch for sheets over 36 by 48 to 48 by 72 inches.

3.4 Edge finish. On cut sizes or laminated glass cut to pattern, edges shall be finished in accordance with commercial practice, unless otherwise specified by the procuring activity (see 6.2).

3.5 Cutting. The laminated glass shall be such that it can be cut and finished to various shapes, with ordinary glass-cutting and glass-edging equipment.

3.6 Flatness. Any bow of laminated glass shall not exceed 1/32 inch per lineal foot. Reverse curved or crooked laminated glass shall be unacceptable.

3.7 Properties of laminated glass.

3.7.1 Light stability and luminous transmittance. When tested as specified in 4.3.1, classes 1 and 2 laminated glass shall retain not less than 70 percent of their original luminous transmittance after being subjected to ultraviolet radiation, without evidencing defects, except that a very slight discoloration, perceptible only over a white background will be permitted. No bubbles or other noticeable decomposition shall develop in the irradiated portion of the glass after it has been immersed in boiling water (see 4.3.1.1.4).

3.7.2 Optical deviation and visibility distortion.

3.7.2.1 Optical deviation. When tested as specified in 4.3.2.1, class 1 laminated glass shall limit direct vision (optical) deviation to the extent that a secondary image will not shift beyond the point of tangency with the inside edge of a 4.5 inch diameter circle.

3.7.2.2 Visibility distortion. When tested as specified in 4.3.2.2, class 1 laminated glass shall limit visibility distortion to the extent that no light and dark patches existent over the entire shadow area will appear until the glass and screen are at least 25 inches apart.

3.7.3 Resistance to humidity and immersion.

3.7.3.1 Humid atmosphere. When tested as specified in 4.3.3, classes 1 and 2 laminated glass shall withstand exposure in a warm humid atmosphere for a minimum period of 2 weeks, without separation of the materials, except that small occasional spots will be permitted, provided they do not extent inward from the outer edge of the glass by more than 1/4 inch.

3.7.3.2 Water immersion. When tested as specified in 4.3.4, classes 1 and 2 laminated glass shall withstand immersion in boiling water for a minimum period of 2 hours without developing bubbles or other defects except that cracks in the glass will be permitted. In addition, defects not more than 1/2 inch from such cracks, not more than 1/2 inch from the outer edge of the glass, shall be permitted.

3.7.4 Resistance to impact (nonscatterability).

3.7.4.1 Falling dart. When specified by the procuring activity, the falling dart test shall be conducted for acceptance inspection. When tested as specified in 4.3.5.1, classes 1 and 2 laminated glass shall withstand the impact of a 7 ounce steel dart, dropped 30 feet. The dart may crack the glass and may puncture the test specimen and small particles may disengage themselves from both sides of the specimen at and immediately around the point of the impact, but no loose or detached pieces shall leave any area of the specimen exclusive of the area punctured by the dart. Furthermore, the glass on adjacent sides of each crack extending from the area punctured by the dart shall be held in place by the reinforcing or strengthening material, and no glass shall be freed from the reinforcing or strengthening material for a distance greater than 1-1/2 inches from a crack.

3.7.4.2 Falling ball. When tested as specified in 4.3.5.2, classes 1 and 2 laminated glass shall have sufficient strength to withstand the impact of a 1/2 pound solid steel ball, dropped from a height of 30 feet, without exposing more than 1 square inch of reinforcing or strengthening material immediately opposite the point of impact. Total separation of glass from such material shall not exceed 3 square inches on either side.

3.7.4.2.1 Impact of 0°F. When tested as specified in 4.3.5.2.1, classes 1 and 2 laminated glass may break into separate pieces under the impact specified in 3.7.4.2, but the total separation of glass from the reinforcing or strengthening material shall be not greater than 3 square inches on either side.

3.7.5 Penetration resistance. When classes 1 and 2 laminated glass are tested as specified in 4.3.6, the five pound ball shall pass completely through no more than two of the specimens within a five second interval after impact, either by a puncture of the specimen or by means of the specimen fracturing into relatively large pieces which fold aside to permit passage of the ball. A large number of cracks in the glass, tears in reinforcing interlayer material, and substantial permanent deformation in the shape of the originally substantially flat specimen may be caused by the impact and is acceptable.

3.8 Marking. Classes 1 and 2 laminated glass shall be piece marked as specified by the procuring activity (see 6.2).

3.9 Waviness. Classes 1 and 2 laminated glass shall exhibit no objectionable waves or similar objectionable defects as defined in DD-G-451.

3.10 Workmanship. The laminated glass shall be free from scratches, dirt, foreign matter, and other defects that may affect serviceability. Workmanship shall include examination for defects in appearance and waviness (see table I).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Sampling for inspection and acceptance. Sampling for inspection shall be performed in accordance with the provisions set forth in MIL-STD-105 except where otherwise indicated. For purposes of sampling, an inspection lot for examination and tests shall consist of all material of the same class and type, as applicable, submitted for delivery at one time.

4.2.1 Inspection of materials and components. In accordance with 4.1 above, the supplier is responsible for insuring that materials and components used were manufactured, examined, and tested in accordance with the requirements of this specification, and to the extent specified, of all referenced subsidiary specifications and standards. In the event of conflict, this specification will govern. A supplier's certificate of compliance with 3.2, 3.2.1 and 3.2.2 shall be furnished.

4.2.2 Classification of inspection.

4.2.2.1 Preproduction inspection. Preproduction inspection shall be conducted where specified by the procuring activity and shall consist of examination and testing. Examination shall consist of that specified in 4.2.3.1.1, 4.2.3.1.2 and 4.2.3.1.3. Testing shall consist of that specified in 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6 and 4.3.7.

4.2.2.2 Acceptance inspection. Acceptance inspection shall consist of the examination specified in 4.2.3.1.1, 4.2.3.1.2 and 4.2.3.1.3 and testing specified in 4.3.2, 4.3.4, and 4.3.5.1 (when specified, see 3.7.4.1).

4.2.3 Inspection of material.

4.2.3.1 Examination of the material. Examination of the laminated glass shall be made in accordance with the classification of defects, inspection levels and acceptable quality levels (AQLs) set forth below. The lot size, for purpose of determining the sample size in accordance with MIL-STD-105, shall be expressed in units of 10 sheets of laminated glass for examination in 4.2.3.1.1, and 4.2.3.1.2, and in units of shipping containers for examination in 4.2.3.1.3. For preproduction inspection only, the sample size shall consist of 15 specimens of class 1 for each thickness specified, and 10 specimens of class 2 for each thickness specified.

4.2.3.1.1 Examination of the laminated glass for defects in appearance, workmanship, and waviness. The sample unit for this examination specified in table I shall be one sheet of laminated glass.

Table I. Examination of the laminated glass for defects in appearance, workmanship, and waviness

Examine	Defect
Appearance	Not clear (colorless. One or more plies not tinted uniformly, (class 1, type II). Not polished surface as specified. Cracked, chipped or broken.
Workmanship	Not laminated. Any rough or sharp edge. Bubbles or blemishes in glass or bonding resin. Not flat, any reverse curvature or crookedness.
Waviness	Objectionable distortion by refraction or striation.

4.2.3.1.2 Examination of the laminated glass for dimensional defects. The sample unit for this examination specified in table II shall be one sheet of laminated glass.

Table II. Examination of the laminated glass for dimensional defects

Examine		Defect
Length and width		
Up to 24 x 36 inches		Varies by more than ± 1/32 inch from size specified.
Over 24 x 36 inches		Varies by more than ± 1/16 inch from size specified.
Thickness of laminate		
Class 1		Less than 15/64 or over 19/64 inch (unless otherwise specified).
		Varies by more than 1/32 inch from thickest to thinnest part.
Class 2		Less than 13/64 or over 5/16 inch (unless otherwise specified).
		Varies by more than 1/32 inch from thickest to thinnest part.
Bow (curvature)		Any bow or curvature exceeding 1/32 inch per lineal foot.
Offset (or slippage of plies) (uncut sheets).	to 24"x36"	Varies by more than 1/32 inch on any edge.
	to 36"x48"	Varies by more than 1/16 inch on any edge.
Over 36" x 48"	to 48"x72"	Varies by more than 3/32 inch on any edge.

4.2.3.1.3 Examination of packaging. An examination shall be made in accordance with table III, to determine that preservation, packing and marking comply with section 5 requirements. The sample unit for this examination shall be one shipping container fully packed, selected just prior to the closing operation. Shipping containers fully prepared for delivery shall be examined for closure defects.

Table III. Examination of the laminated glass for packaging.

Examine	Defect
Preservation	Not level specified.
	Glass not cleaned and dried prior to wrapping.
	Sheets of paper missing (see 5.1.1.2) or not as specified.
Packing	Not level specified; not in accordance with contract requirements.
	Any nonconforming component, component missing, damaged or otherwise defective, affecting serviceability.
	Container not as specified; closures not accomplished by specified or required methods or materials.
	Inadequate application of components, such as: incomplete closure of case liners, container flaps, loose or inadequate strappings, bulged or distorted containers.
Count	Less than specified or indicated quantity of sheets per container.
Weight	Gross weight exceeds specified requirements.
Markings	Interior or exterior markings (as applicable) omitted, illegible, incorrect, incomplete, of improper size, location, sequence, or method of application, or not in accordance with contract requirements.
	Special markings omitted or not as specified (see 5.3)

4.2.3.1.4 Inspection levels and acceptable quality levels (AQLs) for examinations. The inspection levels for determining the sample size and the acceptable quality levels (AQLs) expressed in defects per 100 units, shall be as follows:

Examination paragraph	Inspection level	AQL
4.2.3.1.1	I	1.5
4.2.3.1.2	S-2	2.5
4.2.3.1.3	S-2	4.0

4.2.3.2 Classification of tests. All tests under this specification shall be classified as lot acceptance tests. Lot acceptance tests shall be made on each lot of material and, in conjunction with the above examination, shall be the basis for acceptance or rejection of the lot.

4.2.4 Testing. The laminated glass shall be tested for the applicable characteristics specified in 4.2.2, in accordance with the test methods specified herein. The lot size, for the purpose of determining the sample size for testing shall be expressed in units of 10 sheets of laminated glass. The sample unit shall consist of sufficient laminated glass to prepare all required specimens. The inspection level shall be S-1, with an acceptance number of 0. The results for each test shall be the averaged results of the specimens.

4.3 Test methods.

4.3.1 Light stability and luminous transmittance.

4.3.1.1 Light stability. Light stability test shall be made with three standard specimens, using a high-intensity calibrated light source, and a cabinet providing ultraviolet radiation, as shown in table IV. Each specimen shall be subjected to the following tests.

Table IV. Test equipment

Items	In this specification	In code Z26.1 - 1966 (R 1973)
Illuminant A; radiation source	4.3.1.1 and 4.3.2.2	5.1; 5.2 (tests No. 1 and 2)
Illuminated, box, projector with screen	4.3.2.1 and 4.3.2.2	5.15 (test No. 15)
Steel dart; impact frame	4.3.5.1	5.9 (test No. 9)

4.3.1.1.1 Original and after-test value. The regular (Parallel) luminous transmittance of the original specimen at normal incidence shall be measured at normal incidence calculated to International Commission or Illumination "Illuminant A". The original value shall be the photometer reading without the glass in position. The luminous transmittance after testing shall be considered as the percentage of the photometer readings with the glass in position as compared to the reading without the glass in position (see 3.7.1).

4.3.1.1.2 Irradiation. The same two specimens, each with a portion protected from radiation, shall be placed 9 inches from the source of ultra-violet radiation, arranged so that face to be glazed to the outside of the vehicle or the weather, will be toward the lamp. As thus installed, and with the temperature of the specimens maintained at 100 to 120°F (38 to 49°C), the lamp shall be operated for an exposure period of 100 hours ± 10 minutes, with 170 ± 1 volts across the tube terminals and a current of 4 ± 0.1 amperes.

4.3.1.1.3 After -radiation value. The transmittance value shall be measured as specified in 4.3.1.1.1 and the percentage of after-radiation value to original value calculated for each specimen, to determine compliance with 3.7.1. The specimens shall be examined against a white background.

4.3.1.1.4 Effect of immersion in boiling water. After the transmittance measurements have been made, the same two irradiated specimens shall be immersed, vertically on edge, in water at 150° ± 1.8°F (66° ± 1°C), for 3 minutes, and then quickly transferred and similarly immersed in boiling water for a minimum of 10 minutes. After removal from the boiling water, the irradiated portions of the specimens shall be examined, for compliance with 3.7.1.

4.3.2 Optical deviation and visibility distortion. These tests shall be made with class 1 glass. Two specimens shall be tested. The specimens shall be prepared so that the area within 1 inch of any edge is covered with an opaque mask for specimens up to 24 inch by 24 inch or up to 576 square inches inclusive and the area within 2 inches of any edge covered with an opaque mask for specimens greater than 24 inches by 24 inches or over 576 square inches in area.

4.3.2.1 Optical deviation. The illuminated box (see table IV) shall be installed in a dark or semi-dark room, such that the secondary image, if any, and the white circle will be clearly visible. The specimen shall be placed 25 feet from the face of the box and positioned so that the area of the specimen will be normal to the line of vision between the light source and an examiner's eye (one eye only). As thus arranged, the entire unmasked area of the specimen shall be surveyed to determine the position of the secondary image with respect to the inside edge of the white circle to determine conformance to 3.7.2.1.

4.3.2.2 Visibility distortion. The same specimens used for the optical deviation test shall be placed in a dark room, between a 500-watt lantern slide projector and a 5-foot square screen, (see table IV) as close to and as nearly parallel to the screen as possible. The lantern shall be focused on the screen 25 feet distant, and the specimen moved toward the lantern in steps of 5 inches while being retained as nearly parallel to the screen as possible. At each step (position) up to and including a distance of not less than 25 inches, the entire unmasked area of the specimen shall be surveyed, and the area of the shadow on the screen observed, until light and dark patches begin to appear throughout the entire area. The distance at which the entire area shows patches shall determine compliance with 3.7.2.2

4.3.3 Humidity. One specimen shall be kept for a minimum period of 2 weeks in a closed container over water, with the temperatures of the air in the container maintained within the limits of 120 to 130°F, (49 to 54°C) and 98 to 100 percent relative humidity. At the end of the 2 week exposure, the specimens shall be examined for conformance to 3.7.3.1.

4.3.4 Water (boiling) immersion. One specimen shall be immersed, vertically on edge in water of 150° ± 1.8°F (66° ± 1°C) for 3 minutes, and then quickly transferred to and similarly immersed in boiling water for a minimum of 2 hours. After removal from the water, the specimens shall be examined for conformance to 3.7.3.2.

4.3.5 Impact (nonscatterability). Tests shall be made with a total of 4 specimens, 1 to be used for the dart test, 2 for the ball test at 70 to 85°F (21.1 to 29.4°C), and 1 for the ball test at 0° ± 1.8°F (-17.8 ± 1°C) as follows.

4.3.5.1 Dart, 30 foot ± 2 inch drop. The specimens shall be separated and brought to uniform temperature by being held for not less than 4 hours in a chamber at 70 to 85°F (21.1 to 29.4°C). At the end of the 4-hour conditioning period each of the group of specimens shall be immediately placed in a wood and steel frame, in a horizontal plane, and subjected, at a point within 1 inch of the center, to the impact of a 7 ± 0.1 ounce steel dart, dropped 30 feet ± 2 inches. The dart shall be dropped once, freely, from rest and the specimens shall be examined for conformance to 3.7.4.1.

4.3.5.1.1 Frame and dart. The frame and dart to be used in this test shall be of design as shown in table IV. The dart shall have a hardened nose at the impact end, and balance fins at the other end.

4.3.5.2 Ball, 30 foot ± 2 inch drop. After being brought to uniform temperature as specified in 4.3.5.1, each of the group of 2 specimens shall be placed in a frame, the same as used in the dart test, and supported so that the plane of the specimen will be substantially horizontal at time of ball impact, and then examined for conformance to 3.7.4.2.

4.3.5.2.1 Ball, 30 foot ± 2 inch drop; cold test. The temperature of the specimen shall be stabilized at 0° ± 1.8°F (-17.8 ± 1°C) and the specimen then removed from the cold chamber and subjected to the test specified in 4.3.5.2, within 45 seconds after removal, to determine conformance to 3.7.4.2.1.

4.3.5.2.2 Impact procedure. A 1/2 pound ± 1 ounce solid, smooth, steel sphere shall be dropped 30 feet ± 2 inches once, freely, and from rest, striking the specimen within 1 inch of its center on that face which will be glazed to the outside of the vehicle or to the weather. The ball shall be allowed to make only 1 impact with each specimen.

4.3.6 Penetration resistance. Ten 12 ± 1/16 by 12 ± 1/16 inch substantially flat specimens, as submitted, shall be tested. The specimens shall be separated and kept at a temperature of 70 to 85°F (21.1 to 29.4°C)

for at least 4 hours immediately preceding the test to insure a uniform temperature throughout each specimen when tested. Each specimen shall be supported in a wooden frame conforming to figure 1. The frame shall be so supported that the plane of the specimen will be substantially horizontal. A 5 pound ± 0.5 ounce solid smooth steel sphere shall be dropped from a height of 12 feet ± 2 inches once, freely and from rest, so as to strike the approximate geometric center of the test specimen. The ball shall be allowed to make only 1 impact with each test specimen.

4.3.7 Packing test. Exterior packs shall pass a minimum of 1 hour vibration on Standard Vibration machine at a measurement of 1 G. In addition, 2 fifth zone impacts on each end of the case shall be performed on a Standard Incline Impact testing machine.

5. PACKAGING

Application. The requirements of section 5 apply only to purchase by or direct shipment to the Government.

5.1 Preservation. Preservation shall be level A, B, or commercial, as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Cleaning. Glass shall be cleaned in accordance with method C-1 of MIL-P-116 and dried by any applicable procedure specified therein.

5.1.1.2 Unit packing. Any quantity of two or more pieces of laminated glass of one class and uniform size shall have each piece separated from the other with a sheet of the paper specified in 5.1.1.2.1 and shall have a sheet of paper on top of the stack of glass as well as the bottom. When a single piece of glass is being packed, it shall have a sheet of paper on each surface. Unless otherwise specified in the contract or order (see 6.2), laminated glass shall be unit packed in quantities specified by the procuring agency in accordance with method III of MIL-P-116. Shapes of only one set of nominal dimensions shall be placed in one package. When required, specified quantities of unit packing shall be intermediately packed as specified in the contract or purchase order (see 6.2).

5.1.1.2.1 Paper sheets. The paper sheets shall be the size of the piece of glass, plus or minus 1/4 inch and shall be of one of the following materials:

a. Neutral wrapping paper.
b. Kraft wrapping paper conforming to grade B of UU-P-268 having a minimum basis weight of 30 pounds.

5.1.2 Level B. Preservation shall be the same as for level A (see 5.1.1).

5.1.3 Commercial. Sheet (sheeting) shall be unit packed in accordance with Fed. Std. No. 356.

5.1.4 Disposability (see 6.3).

5.2 Packing. Packing shall be level A, B, or commercial as specified (see 6.2).

5.2.1 Level A. Glass shall be packed in a close fitting wood-cleated plywood box or a nailed wood box conforming to the requirements of PPP-B-601, overseas type style B, or PPP-B-621, class 2, load type III, respectively. Box shall be lined with at least three layers of stock meeting the requirements of type CF, class-weather resistant, variety SW, grade W6C of PPP-F-320. Box shall be closed and strapped in accordance with the applicable box specification or appendix thereto. Gross weight of shipping containers shall be as specified in the applicable container specification.

5.2.2 Level B. Glass shall be packed, closed, and tested in the same manner as that specified for level A except that containers shall be of a domestic type (see 5.2.1). Gross weight shall not exceed 200 pounds.

5.2.3 Commercial. Packing shall be in accordance with Fed. Std. No. 356.

5.2.4 Disposability (see 6.3).

5.3 Marking. In addition to any special marking specified in the contract or order, marking shall be in accordance with MIL-STD-129 and shall include the word "FRAGILE". Commercial packaging shall be marked in accordance with Fed. Std. No. 356.

6. NOTES

6.1 Intended use.

6.1.1 Class 1. Class 1 laminated glass is intended for use in windshields and for other applications where clarity of vision without distortion is a factor.

6.1.2 Class 2. Class 2 laminated glass is intended for use where optical deviation and visibility distortion are not of a critical nature (side window, rear windows, etc.).

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number, and date of this specification.
b. Class and type, as applicable, of glass required (see 1.2).
c. Number of plies to be tinted (type 2 only) (see 1.2 and 3.2).
d. Preproduction inspection, if required (see 3.1).
e. Size, pattern and thickness, to be furnished (see 3.3).
f. Thickness tolerances if other than that specified (see 3.3.1.1).
g. Cut size tolerances if other than that specified (see 3.3.1.2).
h. Grinding or special edge finish when required (see 3.4).
i. Use of falling dart test for acceptance inspection (see 3.7.4.1).
j. Piece marking required (see 3.8).
k. Level of preservation (see 5.1) and level of packing (see 5.2) required.
l. Unit packing quantity and intermediate packing quantity, if required.
m. Additional marking, if required (see 5.3).

6.3 Disposability of preservation and packing materials. Environmental pollution preventive measures are contained in the preservation and packing material specifications indicated in section 2. Refer to these specifications for recommended disposability methods.

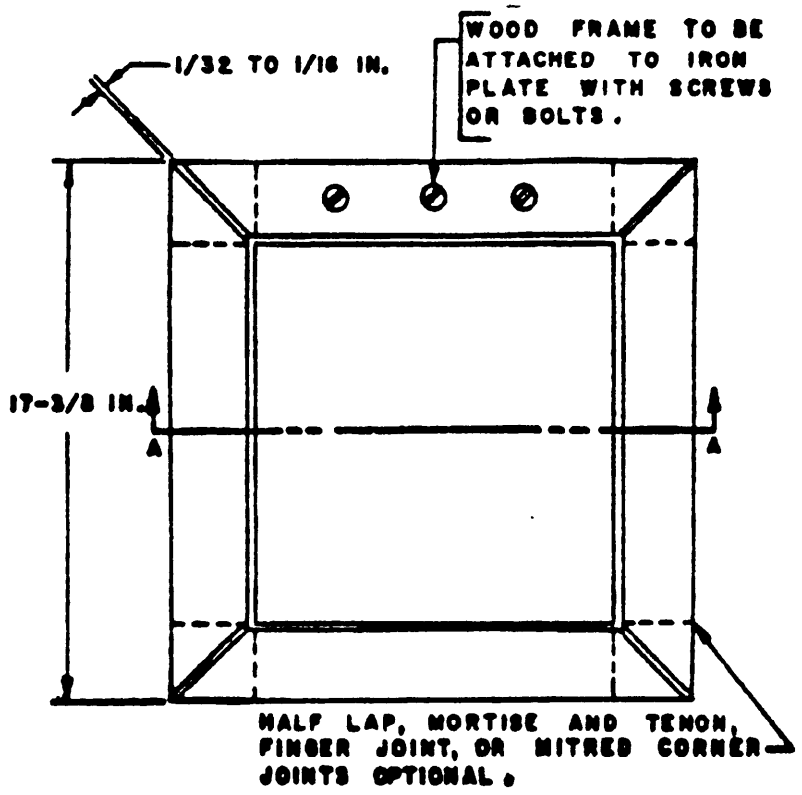
Custodians:
Army - MR
Navy - AS
Air Force - 99

Review activities:
Army - MI, ME
DSA - GS

User activities:
Army - EL, SM, AT
Navy - YD, MC

Preparing activity:
Army - MR

Project No. 9340-0034



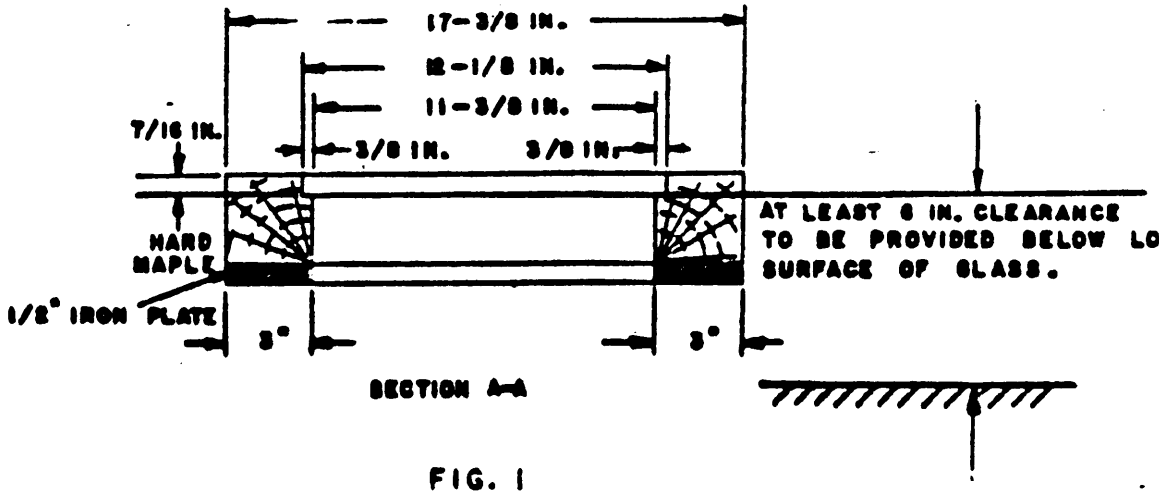


FIG. 1
HOLDING FIXTURE

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document*(s)* or to amend contractual requirements.

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Watertown Massachusetts 02172

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ USER
	☐ MANUFACTURER
	☐ OTHER *(Specify)*:

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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(TO DETACH THIS FORM, CUT ALONG THIS LINE.)