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AEROSPACE MATERIAL SPECIFICATION

AMS 3922A

Issued 7-1-47
Revised 10-1-82

PLYWOOD, HIGH DENSITY

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 2-1-56. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "A" revision of the subject specification.

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This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of 10-1-82. By this action, subject specification number and title will be deleted from the active specification index of Aerospace Material Specifications.

This specification is under the jurisdiction of AMS Committee "C".

AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 4 5 L xington Ave., N w York 17, N.Y.

AMS 3922A
Issued 7-1-47
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PLYWOOD, HIGH DENSITY

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase ord rs.

2. FORM: Flat panels.

3. APPLICATION: Primarily for heavily loaded components of shipping containers and similar parts where high strength characteristics are required.

4. MATERIAL AND FABRICATION: Laminated wood veneers bonded with synthetic resin glue.

4.1 Veneer: May be rotary cut, sliced or sawed, and shall be of the following species:

American Beech
Birch (yellow, sweet, paper or Alaska)
Hard Maple (including sound Bird's Eye)

4.2 Glue: Shall be of either cold-setting or hot-press, thermosetting synthetic resin type, and shall be resistant to the formation and growth of molds and fungi.

4.3 Number and Arrangement of Plies: Material shall consist of an odd number of plies of substantially equal and uniform thickness. Face plies shall be of birch or maple. Interior plies may be of birch, beech or maple. All plies, except the center ply, shall occur in pairs and the two plies of each pair shall be of the same species and direction of grain, and placed on opposite faces of the center ply. The grain of each ply shall be essentially at right angles to that of adjacent plies and to edges of finished panel. The grain of face plies shall be essentially parallel to the long dimension of the finished panel.

4.4 Seams: May be present in individual plies provided the following requirements are met.

4.4.1 All joints shall be close with no overlapping.

4.4.2 Joints parallel to the grain of the ply may be either butt or scarfed and shall be essentially parallel to the grain of both veneers.

4.4.3 Joints perpendicular to the grain of the ply shall be scarfed and shall be essentially at right angles to the grain of both veneers. Slope of scarves shall be approximately 1 in 12.

4.4.4 Tape shall be used only at joints on outside surface of face plies.

4.4.5 Metal staples shall be used only when no other means of fastening is practicable; such staples shall be removed from finished panels.

5. TECHNICAL REQUIREMENTS:

5.1 Specific Gravity of Veneer: Shall be not lower than the values shown below for the respective species, using weight of oven dry specimens and volume at 12% moisture content:

Species	Specific Gravity
American Beech	0.60
Birch (sweet or yellow)	0.58
Birch (paper or Alaska)	0.53
Maple	0.60

5.2 Shear Strength and Wood Failure: Shear test specimens prepared and tested in accordance with ASTM D805-47, Sections 68-73, inclusive, shall show wood failures not lower than the following percentages of the shear areas for the average shear strengths found, and shall show no delamination or separation at glue lines at any time; values shall be based on tests of 5-15 specimens in each condition:

Average Shear Strength psi	Wood Failure, %, min	
	Individual	Average
Under 250	40	75
250 to 350, incl	20	50
Over 350	10	30

5.2.1 Conditioning:

5.2.1.1 Wet and Dry Cycling: Specimens shall be immersed in water at room temperature for 48 hr, dried at 145 F ± 5 for 8 hr, followed by 2 cycles of soaking for ø 16 hr and drying for 8 hr under the same conditions. Specimens shall then be immersed in water for a final 16 hr period and tested immediately after removal.

5.2.1.2 Cyclic Boiling: Specimens shall be immersed in boiling water for 4 hr, dried at 145 F ± 5 for 20 hr and again immersed in boiling water for 4 hr, cooled ø in water and tested immediately after removal.

6. QUALITY:

6.1 Veneer: All veneer shall be sound wood. Any knots present shall be sound and tight and shall not be present in greater number than 6 per sq ft of veneer. No ø single knot shall have an average diameter greater than 1/4 in. and the sum of the average diameters of all knots in any square foot of veneer shall be not more than 3 inches. Veneer shall not be patched to remove defects.

6.2 Finished Panels: Shall be smooth, flat, and free from blisters, wrinkles and laps, from dried glue, oil, wax, tape and other foreign materials detrimental to adhesion of glue or of paint finishes, and from internal and external defects detrimental to fabrication or to performance of parts. Sanding is permissible provided thicknesses of face plies are not less than the minimums permitted by allowable tolerances.

7. TOLERANCES: Unless otherwise specified, the following tolerances apply; thickness tolerances apply to material having moisture content of 8-12%.

7.1 Thickness:

7.1.1 Veneer:

Nominal Thickness Inch	Tolerance, Inch Plus and Minus
0.125 and under	0.002
Over 0.125	0.004

7.1.2 Panels: Plus and minus 0.031 in. for unsanded panels; plus 0, minus 0.031 in. for sanded panels.

7.2 Length and Width: Plus and minus 0.062 inch.

7.3 Squareness: Panels shall be square within 0.125 inch.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product meets the requirements of this specification. This report shall include the purchase order number, material specification number, size, and quantity.

8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

9. IDENTIFICATION: Unless otherwise specified, each panel shall be marked with AMS 3922A, manufacturer's identification, and the trademark of the organization under whose grading rules the material is manufactured and inspected. Markings shall be clearly legible and shall not be obliterated by normal handling.

10. PACKAGING:

10.1 Unless otherwise specified, packaging shall be accomplished in accordance with standard commercial practice and in such a manner as to ensure that the material, during shipment and storage, will be protected against damage from exposure to weather or any normal hazard.