

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 3940

Issued 7-1-47

Revised

COMPOSITION BOARD

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1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Flat panels.
3. **APPLICATION:** For use where moderate strength characteristics are required, such as panelling and sheathing of shipping containers.
4. **MATERIAL AND FABRICATION:** Wood fibres physically separated and then heavily compressed to obtain the required density and strength properties, using the natural wood lignins as the bonding agent, in accordance with the following:

(a) Wood Species.- Unless otherwise specified, shall be one or a combination of the following species:

Spruce	Cottonwood
Fir	Willow
Poplar	Southern Yellow Pine
Gumwood	Redwood

Wood fibres shall be short and coarse so as to yield a board of high density and rigidity.

(b) Laminating.- Panels 1/4 inch and under in nominal thickness shall be of one solid sheet. Panels over 1/4 inch in nominal thickness may be of one solid sheet or may consist of thinner sheets laminated and bonded with either cold-setting or hot-press, thermosetting synthetic resin glue which shall be resistant to the formation and growth of molds and fungi.

(c) Chemical Treatment.- Panels may be chemically treated to improve strength and resistance to abrasion, and to reduce moisture absorption.

5. **TECHNICAL REQUIREMENTS:** (a) Board shall be capable of being drilled, sawed, and nailed in any direction without cracking, splitting, chipping or delaminating.

(b) Tensile Strength.- Tensile strength, reported as the average of not less than five determinations, shall be not lower than 4100 psi, when determined as follows. Strength properties shall be approximately equal in all directions of board:

Test specimens shall be approximately nine inches long by two inches wide and shall have a gage section two inches long by one inch wide. The radius blending the gage section into the grip area shall be not less than three inches. The rate of travel of movable members of the testing machine shall be 0.05 - 0.25 inch per minute. Each determination shall be reported to the nearest 100 psi.

Section 10.1 of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to or to be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider any matter which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

(c) **Moisture Resistance.**- Board shall increase in weight not more than 10% and no dimension shall change by more than 1% when specimens are submerged in tap water at room temperature for 24 hours and reweighed and re-measured immediately after removing from water and wiping or blotting off excess moisture.

6. **QUALITY:** Panels shall be smooth, flat and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts. Board in which defects are revealed during fabrication will be subject to rejection.
7. **TOLERANCES:** Unless otherwise specified, tolerances shall conform to the following requirements:

(a) **Thickness.**-

Nominal Thickness, inch	Tolerance, inch, plus and minus
0.500 and under	0.010
Over 0.500	0.015

(b) **Length, Width and Squareness.**- A tolerance of ± 0.062 inch will be allowed on length and on width of panels. Panels shall be square within 0.125 inch.

8. **REPORTS:** (a) Unless otherwise specified, the vendor of composition board shall furnish with each shipment three copies of a notarized report showing the results of tests to determine conformance to the requirements of this specification, or stating that the board conforms to the requirements specified. This report shall include the purchase order number, material specification number, size and quantity.
- (b) Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, contractor or other direct supplier of composition board, part number and quantity. When composition board for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of board to determine conformance to the requirements of this specification, and shall include in the report a certification that the board 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 3940 and the manufacturer's identification. Markings shall be clearly legible and shall not be obliterated by normal handling.
10. **PACKAGING:** (a) Unless otherwise specified, packaging shall be accomplished in accordance with standard commercial practice and in such a manner as to insure that the composition board, during shipment and storage, will be protected against damage and against exposure to weathering and harmful agents of any kind.