

INCH-POUND

MIL-M-52599B
14 May 1992
SUPERSEDING
MIL-M-52599A
17 March 1983

MILITARY SPECIFICATION

MEMBRANE SURFACING: RUNWAYS, TAXIWAYS, HELIPADS AND SPLICING

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

1. SCOPE

1.1 Scope. This specification covers three types of coated fabric membrane.

1.2 Classification. The membrane shall be of the following types as specified (see 6.2).

Type I - Runway membrane
Type II - Taxiway membrane
Type III - Splicing membrane

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: STRBE-TSE, Fort Belvoir, VA 22060-5606 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 5680

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SPECIFICATIONS

FEDERAL

- A-A-55057 - Panels, Wood/Wood Based; Construction and Decorative.
- FF-N-105 - Nails, Brads, Staples and Spikes, Wire, Cut and Wrought.
- PPP-B-601 - Boxes, Wood, Cleated-Plywood.
- PPP-B-1055 - Barrier Material, Waterproofed, Flexible.
- PPP-T-60 - Tape, Packaging, Waterproof.

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- MIL-T-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.
- MIL-B-22191 - Barrier Materials, Transparent, Flexible, Heat Sealable.

STANDARDS

FEDERAL

- FED-STD-191 - Textile Test Methods.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-130 - Identification Marking of US Military Property.
- MIL-STD-731 - Quality of Wood Members for Containers and Pallets.
- MIL-STD-889 - Dissimilar Metals.

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those cited in the solicitation.

U.S. DEPARTMENT OF COMMERCE

- PS-1 - Construction and Industrial Plywood.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, DC 20402.)

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2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 789	- Nylon Injection Molding and Extrusion Materials.
D 903	- Peel or Stripping Strength of Adhesive Bonds.
D 1151	- Effect of Moisture and Temperature on Adhesive Bonds.
D 1682	- Breaking Load and Elongation of Textile Fabrics.
D 3953	- Strapping, Flat Steel and Seals.
D 4675	- Selection and Use of Flat Strapping Materials.
D 3950	- Strapping, Nonmetallic.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The membrane shall be a jointed panel or roll of 2-ply runs of impregnated, bonded and coated base fabric.

3.2 First article. Unless otherwise specified (see 6.2) a sample shall be subjected to first article inspection (see 6.3), in accordance with 4.3.

3.3 Materials. Materials shall be as specified herein. Materials not specified shall be selected by the contractor and shall conform to the requirements specified herein.

3.3.1 Material deterioration prevention and control. The membrane shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the membrane may be exposed.

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3.3.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. Dissimilar metals and methods of protection are defined and detailed in MIL-STD-889.

3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with component and subcomponent, and shall make information available upon request to the contracting officer or designated representative.

3.3.2 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the membrane may be newly fabricated from recovered materials to the maximum extent practicable, provided the membrane produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the membrane.

3.3.3 Base fabric. The base fabric shall be a plain weave, single-ply fabric woven from an 840 denier, continuous filament, high tenacity nylon yarn (polyamide or polyhexamethylene adipimide). The base fabric shall conform to the physical requirements shown in table I.

TABLE I. Physical requirements of base fabric.

Property	Requirements	
	Maximum	Minimum
Weight per sq. yd.; ounces	4.8	4.2
Melting point, yarns; °F	492	472
Yarns per inch, warp and fill	-	22
Breaking strength (grab), warp and fill; pounds	-	325

3.3.4 Coated laminate.

3.3.4.1 Coating. Coated laminate shall be fabricated by applying a compounded chloroprene synthetic rubber coating to two plies of base fabric. The coating shall contain no ingredient deleterious to nylon and shall be applied to the base fabric so as to thoroughly impregnate the fabrics, bond the two plies, and completely and evenly coat the outer surfaces of the laminate.

3.3.4.2 Physical requirements. The coated laminate shall be fabricated so that the edges do not deviate more than 12 inches from a perpendicular line drawn from corner to adjacent corner of the run. The coated laminate shall also conform to the physical requirements shown in table II.

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TABLE II. Physical requirements of coated laminate.

Property	Requirements	
	Maximum	Minimum
Weight per sq. yd.; ounces	48.0	42.0
Breaking strength; pounds	-	900
Warp direction	-	800
Fill Direction	35	25
Elongation, warp and fill; percent	-	100
Tear strength, warp and fill; pounds	-	90
Warp direction	-	10
Fill direction	-	10
Joint peel strength after 72 hours at 212 ±2 °F. (pounds per inch)	-	10
Joint peel strength after 48 hours in distilled water at 77 °F. (pounds per inch)	-	90
Jet fuel resistance; retained breaking strength and elongation; percent	-	-
Flame resistance;	5	-
After flame time; seconds	2	-
Length of char; inches	-	90
Heat resistance, after 5 minutes at 350 °F., retained breaking strength and elongation, percent	-	-
Hydrostatic pressure resistance, for 10 minutes at 1 20-inch head	no leakage	
Extreme temperature resistance; after 2 hours at 180 °F. after 4 hours at -40 °F.	No blocking or tackiness No cracking or flaking of the coating. Equal to laminate with- out joint.	
Joint breaking strength; wet or dry		

3.4 Membrane fabrication. Type I and II membrane shall be fabricated by joining runs of coated laminate into specified membrane sizes. The edges of all membranes shall be cut so that they do not deviate more than 6 inches from a perpendicular line drawn from corner to adjacent corner.

3.4.1 Joints. All joints shall be single lap joints which are vulcanized, or bonded with adhesive. Membrane shall be cleaned of any excess adhesive resulting from lap joint construction.

3.4.1.1 Joint width. The width of all joints shall be not less than 3 inches nor more than 4 inches.

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3.4.1.2 Joint directions. Joints used in the fabrication of the membrane shall be constructed parallel to the length of the membrane except that not more than 2 transverse joints may be constructed in any 100 continuous feet of laminate between parallel joints (single run of coated fabric). However, no transverse joint shall be constructed within 15 feet of any other transverse joint and no transverse joint shall be constructed in an area 36 feet wide by 100 feet long, located symmetrically about the longitudinal center line of the type I panel.

3.4.1.3 Joint strength. Joint peel and breaking strengths shall conform to the requirements as prescribed for coated laminate joints in table II.

3.5 Color. The color of the finished membrane shall be black.

3.6 Marking. The membrane shall be identified in accordance with MIL-STD-130. In addition, each dimension of the membrane shall be clearly marked to the nearest foot with 4 inch high numerals and arrows indicating the length and direction of the dimension. Dimensional markings shall be placed on the uppermost horizontal surface of the folded (prepared for delivery) membrane. All markings shall be made with white, waterproof ink.

3.7 Dimensions. Membrane dimensions shall be as shown in table III.

TABLE III. Membrane dimensions.

Dimension (feet)	Runway membrane type I		Taxiway membrane type II		Splicing membrane type III	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Width	66	67	36	37	2.98	3.02
Length	100	101	100	101	180	195

3.8 Type I, runway membrane. The runway membrane shall be furnished as a one-piece panel and shall contain not more than 23 longitudinal joints nor more than 8 transverse joints.

3.9 Type II, taxiway membrane. The taxiway membrane shall be furnished as a one-piece panel and shall contain not more than 12 longitudinal joints nor more than 4 transverse joints.

3.10 Type III, splicing membrane. The splicing membrane shall be furnished in a compact and uniformly wound roll and shall contain not more than 2 transverse joints. However, unjoined pieces of splicing membrane may be used to form a roll, provided no single piece is less than 75 feet in length. The dimensions of the roll shall be as shown in table III.

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3.11 Workmanship. The finished membrane surface shall contain no excess adhesive and shall be free from bubbles, blisters, and wrinkles. The membrane shall have no holes or cracks in the surface. Except for joints and patches, the surface shall show no evidence of laps, laminations or included foreign material. When tested as specified in 4.5.2.3.2.2, the membrane surfaces shall be free of talc, oil, grease, dirt and other foreign matter and shall show no evidence of tackiness.

3.11.1 Patches. Type I membrane shall contain not more than six patches in any one panel, except that no patches will be permitted in an area 36 feet wide by 100 feet long located symmetrically about the longitudinal center line of the panel. Type II membrane shall contain not more than four patches. Type III membrane shall contain no patches.

3.11.1.1 Patching. The maximum size of a patched area, where permitted, shall not be more than 150 square inches. Patches shall overlap the damaged area not less than 3 inches and the adhesion strength shall be equal to that specified for membrane joints. Holes, cuts, and tears shall be patched on both sides of the membrane. Scuffs and abrasions shall be patched on the damaged side only.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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4.1.2 Component and material inspection. The contractor is responsible for ensuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards, as applicable.

4.2 Classification of inspection. Inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

4.3 First article inspection.

4.3.1 Examination. The first article membrane shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.3.2 Tests. The first article base fabric, coated laminate, and membrane shall be tested as specified in 4.5.2. Failure of any test shall be cause for rejection.

4.4. Quality conformance inspection.

4.4.1 Sampling. Sampling for examination and tests shall be in accordance with MIL-STD-105. Sample size shall be determined by using MIL-STD-105, table I and table IIa. A lot shall be accepted when zero defects are found and rejected when one or more defects are found.

4.4.1.1 Base fabric. A sample of base fabric shall consist of 2 randomly chosen strips. Each strip shall be 3 feet long and full mill width. The samples shall be selected from each 5,000 square yards, or fraction thereof, of base fabric used in the manufacture of the membrane.

4.4.1.2 Coated laminate. The sample and lot of coated laminate shall be as specified for the base fabric (see 4.4.1.1), except that the sample shall be 9 feet long, and when the laminate is being used in the fabrication of types I and II membranes, one strip shall contain a transverse joint midlength of the strip.

4.4.1.3 Membrane.

4.4.1.3.1 Unit of product. For purposes of inspection a completed type I, II, or III membrane shall be considered a unit of product.

4.4.1.3.2 Sampling. Sampling for examination and tests of the membrane shall be in accordance with MIL-STD-105. Sample size shall be determined by using MIL-STD-105, table I and table IIa. A lot shall be accepted when 0 defects are found and rejected when 1 or more defects are found.

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4.4.2 Examination.

4.4.2.1 Coated laminate. Samples selected in accordance with 4.4.1.2 shall be examined in accordance with 4.5.1. Presence of one or more defects shall be cause for rejection.

4.4.2.2 Membrane. Samples selected in accordance with 4.4.1.3.2 shall be examined as specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.4.3 Tests.

4.4.3.1 Base fabric. Samples of the base fabric selected in accordance with 4.4.1.1 shall be tested as specified in 4.5.2.1. Failure of any test shall be cause for rejection of the entire lot represented by the sample.

4.4.3.2 Coated laminate. Samples of coated laminate selected in accordance with 4.4.1.2 shall be tested as specified in 4.5.2.2. Failure of any test shall be cause for rejection of the entire lot represented by the sample.

4.4.3.3 Membrane. Samples of the membrane selected in accordance with 4.4.1.3.2 shall be tested as specified in 4.5.2.3. Failure of any test shall be cause for rejection of the entire lot represented by the sample.

4.5 Inspection procedures.

4.5.1 Examination. Each sample of coated laminate and membrane shall be examined for the defects marked "X" in the appropriate column of table IV.

4.5.2 Tests.

4.5.2.1 Base fabric. Each sample of base fabric shall be tested in accordance with FED-STD-191 by methods shown on table V, except as noted. Failure to conform to any of the applicable physical requirements of table I shall constitute failure of the corresponding test.

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TABLE IV. Examination schedule.

Coated laminate	Membrane		Defect	Requirement paragraph
	Panels	Rolls		
	Types I and II	Type III	Major	
X	X	X	101. Material not as specified.	3.3
-	X	X	102. Materials are not resistant to corrosion or deterioration or treated to be made resistant to corrosion deterioration for the applicable storage and operating environment as specified.	3.3.1
X	X	X	103. Dissimilar metals as specified in MIL-STD-889 are not effectively insulated from each other as specified.	3.3.1.1
X	X	X	104. Contractor does not have documentation available for identification of material, material finishes, or treatments.	3.3.1.2
X	X	X	105. Used, rebuilt or remanufactured components, pieces or parts incorporated in the membrane.	3.3.2
X	X	X	106. Membrane not fabricated as a lamination.	3.3.4
X	X	X	107. Coating not even, complete or properly cured.	3.3.4.1
-	X	-	108. Deviation of edges more than as specified.	3.4
-	X	X	109. Joints not fabricated as specified.	3.4.1
-	X	X	110. Joint width less than minimum specified.	3.4.1.1
X	X	X	111. Color not as specified	3.5
-	X	X	112. Marking not as specified	3.6
-	X	X	113. Dimensions not as specified.	3.7 and Table III
-	X	X	114. Quantity of joints more than specified.	3.4, 3.8, 3.9 & 3.10

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TABLE IV. Examination schedule. (Continued)

Coated laminate	Membrane		Defect	Requirement paragraph
	Panels	Rolls		
	Types I and II	Type III		
X	X	X	115. Workmanship not as specified.	3.11
-	X	X	116. Transverse joint proximity less than specified.	3.4.1.2
-	X	X	117. Excess adhesive on joints or membrane not properly treated or cured.	3.4, 3.4.1
-	-	X	118. Rolled membrane not compactly and uniformly wound.	3.10

TABLE V. Tests of base fabric.

Property	Test method of FED-STD-191
Weight	5041
Melting point of yarn	ASTM D 789
Yarns per inch	5050
Breaking strength (grab)	5100

4.5.2.2 Coated laminate.

4.5.2.2.1 Preparation of specimens. Join the 2 strips with a longitudinal joint. The joint shall be formed by joining two warpwise edges of the coated laminate strips. Test specimens shall be cut from the interior area of the piece formed by the joining of the strips. Six joint strength specimens shall be cut from the joint area only and each specimen shall be a 4 inch by 9 inch rectangle with the joint at the center of the 9-inch dimension. Three of the joint specimens shall be immersed for 48 hours in distilled water maintained at 77 °F. and then blotted dry to prevent slippage in the clamps just prior to test. The other three specimens shall be aged for 72 hours at 212 ± 2 °F, allowed to cool to room temperature, and the peel strength determined. A segment of the formed piece at least 3 feet long and full mill width (from either longitudinal edge to longitudinal joint) shall be completely immersed for 24 hours in JP-4 jet fuel conforming to MIL-T-5624. Test specimens shall then be cut from the interior area of the segment. All specimens, except jet fuel resistance, wet joint strength, and peel strength specimens, shall be conditioned before test as specified in FED-STD-191.

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4.5.2.2.2 Test methods. The specimens shall be tested in accordance with FED-STD-191, as shown in table VI, unless otherwise indicated. Failure of any specimen to conform to any physical requirement of table II shall constitute failure of the test.

TABLE VI. Coated laminate test methods.

Property	Test method of FED-STD-191
Weight	5041
Breaking strength ^{1/}	5100
Elongation	5100
Tear strength	5134
Jet fuel resistance (modified grab method)	ASTM D 1682
Flame resistance	5903
Heat resistance	5100
Hydrostatic pressure resistance	5516
Blocking resistance: High temperature	5872
Cracking resistance: Low temperature	5874
Peel strength: Dry ^{2/}	ASTM D 1151 & D 903
Wet	ASTM D 903

^{1/} Except that the distance between the clamps shall be 6 inches at the start of the test when testing joints.

^{2/} Test after 72 hours at 212 ± 2 °F.

4.5.2.3 Membrane.

4.5.2.3.1 Preparation of specimens. Specimens for use in determining joint breaking and peel strength shall be obtained from the joint area and shall be 4 inches by 9 inches. Specimens for use in determining tackiness shall be 3 inches by 6 inches and shall not be obtained from joint areas of the membrane.

4.5.2.3.2 Test methods.

4.5.2.3.2.1 Breaking and peel strength. Specimens shall be tested in accordance with the procedures prescribed for breaking and peel strength in table VI.

4.5.2.3.2.2 Tack. The tackiness of the membrane shall be determined by folding the specimen upon itself and applying a pressure of 2 pounds per square inch at 160 ± 2 °F for 4 hours. When the pressure is released at the end of this time the material shall be examined. Evidence of the material adhering to itself shall constitute failure of this test.

4.6 Inspection of packaging.

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4.6.1 First article pack inspection.

4.6.1.1 Examination. Examine the first article pack for the defects specified in 4.6.2.3. Presence of one or more defects shall be cause for rejection.

4.6.2 Quality conformance inspection of pack.

4.6.2.1 Unit of product. For the purpose of inspection, a completely processed membrane prepared for shipment, shall be considered a unit of product.

4.6.2.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105. Sample size shall be determined by using MIL-STD-105, table I and table IIa. A lot shall be accepted when 0 defects are found and rejected when 1 or more defects are found.

4.6.2.3 Examination. Samples selected in accordance with 4.6.2.2 shall be examined for the following defects. Presence of one or more defects shall be cause for rejection.

- 119. Type I and II membranes not preserved and strapped as specified (see 5.2.1 and 5.2.2).
- 120. Type III membrane not preserved and secured with tape as specified (see 5.2.3).
- 121. Type I and II membranes not packed in a container shown in figure 1 (see 5.3.1).
- 122. Type III membrane not packed in a shipping box as specified (see 5.3.2).
- 123. Quantities exceed the size and weight limitation of the containers (see figure 1).
- 124. Marking illegible, incorrect or incomplete (see 5.4).

5. PACKAGING

5.1 First article pack. The contractor shall furnish a first article pack for examination and test within the time frame specified (see 6.2) to prove, prior to starting production packaging, that the applied preservation, packing, and marking comply with the packaging requirements of this specification (see 6.4). Examination shall be as specified herein and shall be subject to the surveillance and approval by the Government (see 6.4).

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5.2 Preservation (see 6.4).

5.2.1 Type I, runway membrane, 66 by 100 feet. (NSN 5680-00-921-5809). Areas 3 feet wide on both sides of each end of the membrane for the full width of the membrane (66 feet) shall be cleaned of all dirt, powders, curing compounds and other foreign materials that constitute a hindrance to the construction of adhesive joints. The cleaned areas shall be covered with paper conforming to PPP-B-1055, class E-1. The paper shall be sealed to the membrane at all edges with tape conforming to PPP-T-60, class 1. The membrane shall be accordion pleated in pleats 43 inches ± 2 inches wide in the direction that parallels the 100 foot dimension. The folded membrane runway shall be accordion pleated in pleats 43 inches ± 2 inches wide in the direction that parallels the 66 foot dimension to form a compact 43 inches ± 2 inches by 43 inches ± 2 inches bundle. The folded and pleated bundle shall then be restrained with two lengthwise and two girthwise straps conforming to ASTM D 3950, type II, .625-inch by 0.030-inch and secured with a metal sealed joint or buckle type seal to form a compact bundle of minimum code.

5.2.2 Type II, taxiway membrane, 36 by 100 feet. (NSN 5680-00-921-5810). The membrane shall be cleaned, covered, folded, pleated and strapped as specified in 5.2.1.

5.2.3 Type III, splicing membrane, 3 by 180 feet. (NSN 5680-00-921-6512). The membrane shall be cleaned of all dirt, powders, curing compounds and other foreign materials. The membrane shall be compactly and uniformly wound on a wood core having an inside diameter of 3 inches $+0.063$, -0 inch, with a 1 inch inside diameter hollow core. The length of the core shall be equal to the finished width of the membrane. The roll shall be secured with four strips of tape conforming to PPP-T-60, class 1, 2-inch width. Tape shall be of 12-inch length, with 6 inches on each side of the end of the roll and shall be uniformly spaced over the width of the roll. The taped roll shall be completely wrapped in barrier material conforming to MIL-B-22191, type III, 6 mil thickness. Seams shall be sealed with tape conforming to PPP-T-60.

5.3 Packing (see 6.4).

5.3.1 Membrane runway and membrane taxiway. The membrane runway and membrane taxiway preserved as specified in 5.2, shall be packed in a container as shown in figure 1.

5.3.2 Membrane splicing roll. The membrane splicing roll, preserved as specified in 5.2 shall be packed in a nailed wood cleated-plywood box conforming to PPP-B-601, overseas type, style optional, in quantities not to exceed the weight limitation of the containers.

5.4 Marking (see 6.4). Marking shall be in accordance with MIL-STD-129. For purposes of preservation and packing level marking, level A/A shall be used.

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6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The membrane surfacing is intended for use as a temporary dustproof, waterproof airfield surfacing material. Type I membrane is intended for surfacing runways; type II is for surfacing taxiways; and type III is for joining runway or taxiway sections and for patching holes or tears in the membrane.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Type of membrane, surfacing required (see 1.2).
- c. When a first article is not required for inspection and approval, (see 3.2 and 4.3).
- d. Time frame required for submission of first article pack (see 5.1).

6.3 First article. When a first article inspection is required, the item(s) should be a production model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4 Levels of preservation and packing. The nature of these items is such that only a single level of preservation, and packing is required. This A/A level represents both the maximum and minimum acceptable levels of protection.

6.5 Accessories. DA Supply Catalog 5680-97-CL-E01 should be consulted for accessories required for use with the types of membranes described in this specification.

6.6 Subject term (keyword) listing.

Airfield surface material
 Base fabric, nylon
 Laminate coating
 Membrane fabric
 Nylon yarn

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6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - ME
Navy - YD
Air Force - 99

Preparing activity:

Army - ME

Project 5680-0193

Review activity:

Air Force - 84

User activity:

Army - CE

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END QTY NO.	DESCRIPTION
1	BASE PLYWOOD A-A-55037, TYPE A OR B, .75-INCH THICKNESS.
2	SKID LUMBER MIL-STD-751 CL. II 3 X 4 NOM. SIZE (2 X 4 + 1 X 4 RUBBING STRIP ACCEPTABLE) BEVEL LOWER .75 INCH ON 45 DEGREES.
3	CAP CONFORMING TO PPP-B-601 OVERSEAS TYPE, STYLE A WITH FOLLOWING EXCEPTIONS OF END NO'S 4 AND 5 DESCRIBED BELOW.
4	ALL PLYWOOD PANELS A-A-55037, TYPE A OR B, .375-INCH THICKNESS.
5	ALL CLEATS ON END PANELS, SIDES, AND TOP TO BE NOM. 1 X 4.
6	STRAPPING D9935 AND D4673, TYPE I, HEAVY DUTY, ZINC COATED, 1.25" X .03"
7	AR STAPLES, 1.380-INCH CROWN WIDTH, .75-INCH LONG, GALVANIZED STEEL.
8	74 (MIN.) CEMENT COATED COOLERS OR SINKERS, (FF-N-103 TYPE II STYLE 7 OR 8).
9	84 B6 CEMENT COATED COOLERS OR SINKERS-SEE NOTE 5 BELOW.

NOTES:

- CONSTRUCTION OF PANELS IN ACCORDANCE WITH REQUIREMENTS OF PPP-B-601.
- HEIGHT TO BE DEPENDENT UPON MEMBRANE CONTAINED.
- CONTAINER FOR RAINWATER WILL APPROXIMATE 22 INCHES IN HEIGHT I.D., CONTAINER FOR TANKWATER WILL APPROXIMATE 22 INCHES IN HEIGHT I.D.
- NET WT OF CONTENTS: NOMINALLY 2060 LBS, TANKWATER, 2500 LBS.
- NAILING OF BASE TO SKIDS, CEMENT COATED COOLERS OR SINKERS OF SUFFICIENT LENGTH TO ALLOW CLUNCH OF MIN 1/16 INCH. IF SKIDS ARE MADE OF TWO PIECE CONSTRUCTION, SECURE BEVELED RUBBING STRIP TO NOM. 2 X 4 SKID WITH 84 CEMENT COATED COOLERS OR SINKERS.
- TOP PANEL SECURED IN PLACE WITH CLEATS ON INSIDE.
- STRAPPING SHALL BE DRAWN TO MAXIMUM PERMISSIBLE TENSION FOR ALL BANDS.
- STRAPPING SHALL BE CENTERED ON 1 X 4 CLEATS.

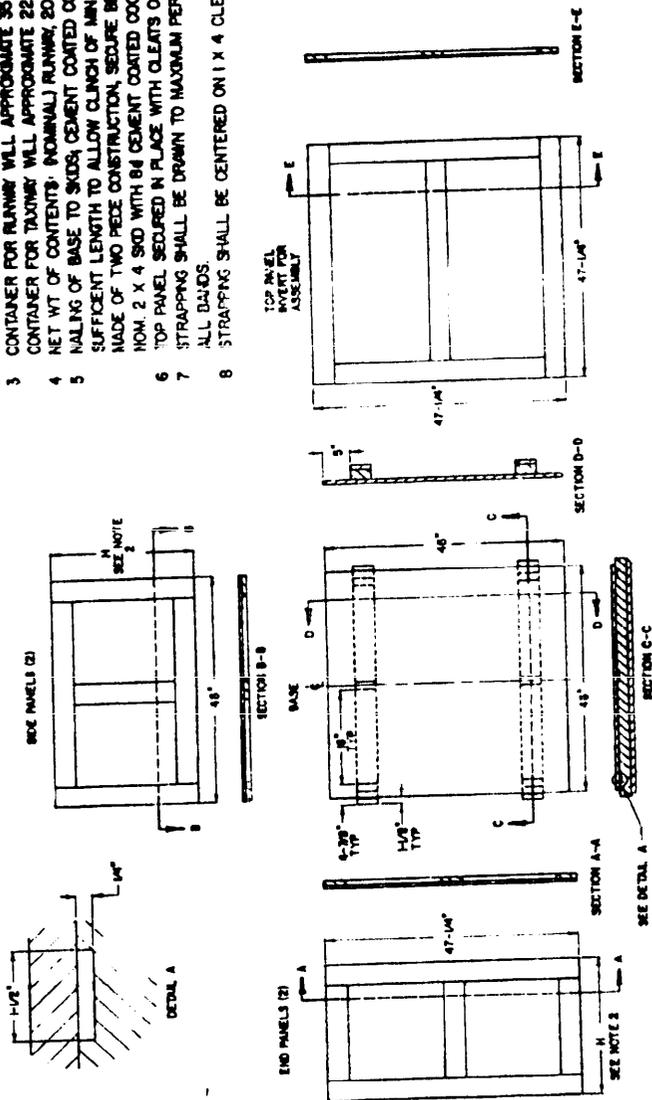
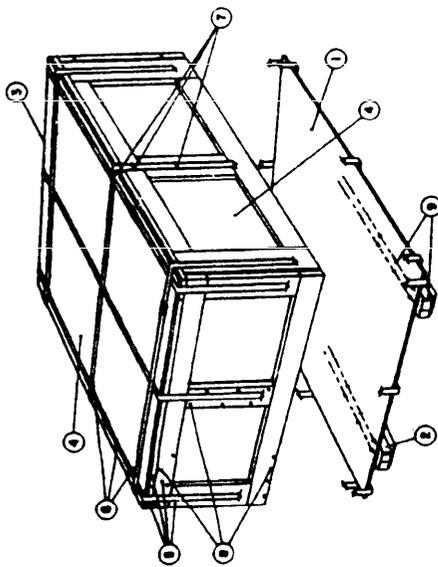


FIGURE 1. Membrane surfacing level A pack.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
NIL-N-52599B

2. DOCUMENT DATE (YYMMDD)
920514

3. DOCUMENT TITLE

Membrane Surfacing: Runways, Taxiways, Helipads and Splicing

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(if applicable)
(2) AUTOVON

7. DATE SUBMITTED

8. PREPARING ACTIVITY

a. NAME

Carolyn B. Johnson

b. TELEPHONE (Include Area Code)
(1) Commercial
(703) 704-3468

(2) AUTOVON
654-3468

c. ADDRESS (Include Zip Code)

US Army Belvoir RDE Center
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