

LLL-L-354c  
April 27, 1967

SUPERSEDING  
Fed. Spec. LLL-L-354b  
April 18, 1962

## FEDERAL SPECIFICATION

### LINOLEUM; DESK TOP

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

#### 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers desk and table top linoleum.

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

Type I—Woven-cotton backed.

Type II—Felt backed.

#### 2. APPLICABLE DOCUMENTS

2.1 Specifications and standards. The following specifications and standards, 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.

##### Federal Specifications:

PPP-B-601—Boxes, Wood, Cleated-Plywood.

PPP-B-636—Box, Fiberboard.

##### Federal Standards:

Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).

Fed. Test Method Std. No. 501—Floor Coverings, Resilient, Nontextile Sampling and Testing.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

##### Military Standards:

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards 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 publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

##### American Trucking Associations, Inc.:

National Motor Freight Classification Rules.

(Application for copies should be addressed to the American Trucking Associations, Inc., 1616 P St., N.W., Washington, D.C. 20036.)

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Uniform Classification Committee:Uniform Freight Classification Rules.

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 W. Jackson Blvd., Chicago, Illinois 60606.)

**3. REQUIREMENTS****3.1 Material.**

**3.1.1 Wearing surface.** The wearing surface of the linoleum shall consist of oxidized linseed oil, fossil, or other resin, or rosins, or an equivalent oleoresinous binder, thoroughly oxidized and intimately mixed with ground cork or wood flour and pigments. The mix shall be pressed to a backing having an extra-smooth surface.

**3.1.2 Backing.**

**3.1.2.1 Woven-cotton backing.** The backing shall be firmly bonded and so keyed to the mix as to be partially concealed in the linoleum. When tested as specified in 4.3.1, the backing shall adhere to the linoleum mix and a pull of not less than 8 pounds shall be required to effect separation. The backing shall not break or tear for a length greater than 2 inches when it is subjected to a load of 8 pounds in the key pull test.

**3.1.2.2 Organic felt backing.** The organic fiber felt backing shall be treated with a resin or asphalt saturant. The backing shall be securely bonded to the wearing surface as to delaminate, split, or break the felt when an attempt is made to pull by hand the wearing surface from the backing.

**3.2 Color.** The color shall be as specified (see 6.2). The color of the linoleum shall be uniform throughout the full thickness of the wearing surface.

**3.3 Surface coating.** Unless otherwise specified (see 6.2), the linoleum shall be supplied without a factory-applied finish.

**3.4 Thickness.** When tested in accordance with 4.3.1, the overall thickness of the linoleum shall be 0.080 inch  $\pm$  0.005 inch.

**3.5 Width and length.** The length and width of the linoleum shall be as specified (see 6.2). When 72 inch width is specified (see 6.2), the tolerances shall be plus one inch, minus zero inch.

**3.6 Weight.** The weight of the linoleum when tested as specified in 4.3.1 shall be not less than 3.6 pounds per square yard.

**3.7 Flexibility.**

**3.7.1 Type I.** The linoleum, after testing as specified in 4.3.1, shall show no evidence of cracking or breaking when bent over a mandrel 1 inch in diameter.

**3.7.2 Type II.** The linoleum, after testing as specified in 4.3.1, shall show no evidence of cracking or breaking when bent over a mandrel 1½ inches in diameter.

**3.8 Indentation.**

**3.8.1 Initial indentation.** When tested in accordance with 4.3.1, the average initial indentation shall be not less than 20 percent or more than 38 percent. No single specimen shall show an initial indentation of less than 17 percent or more than 45 percent. The indenting load shall be 70 pounds.

**3.8.2 Residual indentation.** When tested in accordance with 4.3.1, the average residual indentation shall be not more than 10 percent. No single specimen shall show a residual indentation of more than 12 percent.

**3.9 Gloss.** The linoleum shall have an average gloss value not to exceed 10 when tested as described in 4.3.1.

**3.10 Identification.** The back of each roll of linoleum shall be stamped at least at the ends and center, or shall have a label attached to the end of the roll bearing the name or trademark of the manufacturer. The name or trademark of the manufacturer shall appear on each cut piece.

**3.11 Workmanship.** The wearing surface of the linoleum shall be smooth and free of blisters, cracks, protruding particles, and embedded matter.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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. 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 examinations and tests shall consist of all material of the same type submitted for inspection and delivery at one time.

4.2.1 Inspection of materials and components. In accordance with 4.1 the supplier is responsible for insuring that materials and components used were manufactured and inspected in accordance with the requirements of referenced subsidiary specifications and standards to the extent specified, or, if none, in accordance with this specification. In the event of conflict, this specification shall govern.

4.2.2 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	
		Major	Total
4.2.3.1	I	2.5	6.5
4.2.3.2	S-1		2.5

4.2.3 Examination of the end item. Examination of the end item shall be made in accordance with the classification of defects, inspection levels and acceptable quality levels (AQLs) set forth above. The lot size, for purpose of determining the sample size in accordance with MIL-STD-105, shall be expressed in units of rolls or cut pieces as applicable for examination in 4.2.3.1, and in units of shipping containers in 4.2.3.2.

4.2.3.1 Examination of the end item for defects in appearance, color, and marking.

Examine	Defect	Major	Minor
Appearance	Not uniform; not homogenous	X	
	Embedded dirt or foreign matter		X
	Any blisters, wrinkles, cracks, scratches, dents or heat marks		X
	Ragged or rough edges		X
Color	Surface not made to a smooth even finish	X	
	Color not as specified or agreed upon	X	
	Color not uniform	X	
Identification	Not as specified (see 3.10)		X

4.2.3.2 Examination of preparation for delivery. An examination shall be made to determine that packaging, packing, and markings comply with the requirements of section 5 of this specification. 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.

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Examine	Defect
Packaging	Not level specified; not in accordance with contract requirements.
Packing	Not level specified; not in accordance with contract requirements. Container not as specified; closure not accomplished by specified or required methods or materials. Bulged or distorted container. Any nonconforming component; component missing, damaged or otherwise defective affecting serviceability.
Slits	Paper between sheets not as required, missing or not extending over full area between sheets. Quantities not as required.
Rolls	Individual rolls not wrapped, not sealed.
Marking	Interior or exterior markings (as applicable) omitted, illegible, incorrect, incomplete or not in accord with contract requirements.

## 4.3 Tests.

4.3.1 Testing of the end item. The end item shall be tested for the applicable characteristics as indicated in table I for each lot submitted for inspection. The sample unit shall be 6 sq. ft. with minimum dimension of 9 inches. The inspection level for determining the sample size shall be S-2 with an AQL of 6.0 percent defective except that no less than three sample units shall be randomly selected from the lot. There shall be no evidence of failure to meet the specified requirements. The lot sizes shall be expressed in units of sheets or rolls as applicable.

4.3.2 Conditioning. If not specified in the method of test, the sample or samples shall be conditioned according to method 1041 of Fed. Test Method Std. No. 501.

4.3.3 The following tests shall be conducted in accordance with Fed. Test Method Std. No. 501.

TABLE I. Test methods

Test	Requirement reference	Method
Composition of wearing surface	3.1.1	Certificate of compliance
Keying	3.1.2.1	7221
Thickness	3.4	2111
Width	3.5	2211
Length	3.5	2311
Weight	3.6	7611
Flexibility	3.7	3111
Indentation		
Initial	3.8.1	3221
Residual	3.8.2	3231
Gloss	3.9	7411

## 5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C (see 6.2).

### 5.1.1 Level A.

5.1.1.1 Rolls. Each roll shall be fastened to prevent unwinding of a 4-inch diameter or larger core or mandrel. Each roll shall then be packaged in fiberboard boxes conforming to PPP-B-636 (weather-resistant class) waterproof-sealed in accordance with the appendix thereto.

5.1.1.2 Cut pieces. Cut pieces shall be interleaved with kraft paper of 60 pound basis weight and packaged in quantities of 10 in fiberboard boxes conforming to PPP-B-636 (weather-resistant class) waterproof sealed in accordance with the appendix thereto.

5.1.2 Level C. Rolls or pieces of linoleum shall be packaged in accordance with the supplier's standard practice.

5.2 Packing. Packing shall be level A, B, or C (see 6.2).

### 5.2.1 Level A.

5.2.1.1 Rolls. One packaged roll shall be packaged in a close-fitting wood-cleated plywood box conforming to PPP-B-601 (overseas type). The box shall be closed and strapped in accordance with appendix thereto.

5.2.1.2 Cut pieces. One packaged quantity of cut pieces shall be packed in a close-fitting wood-cleated plywood box conforming to PPP-B-601 (overseas type). The box shall be closed and strapped in accordance with the appendix thereto.

### 5.2.2 Level B.

5.2.2.1 Rolls. One packaged roll shall be packed in a close-fitting wood-cleated plywood box conforming to PPP-B-601 (domestic type). The box shall be closed and strapped in accordance with the appendix thereto.

5.2.2.2 Cut pieces. One packaged quantity of cut pieces shall be packed in a wood-cleated plywood box conforming to PPP-B-601 (domestic type). The box shall be closed and strapped in accordance with the appendix thereto.

5.2.3 Level C. The linoleum shall be packed in a manner which will insure arrival at destination in satisfactory condition and be acceptable to the carrier at lowest rates. Containers and packing shall comply with Uniform Freight Classification Rules, or with National Motor Freight Classification Rules.

5.3 Marking (see 6.2).

5.3.1 Civil agencies. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use. The linoleum is intended for desk tops and table tops and under no circumstances shall be used as floor covering.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents.

- (a) Title, number, and date of specification.
- (b) Type of linoleum required (see 1.2).
- (c) Color of linoleum required (see 3.2).
- (d) Whether a factory finish is required (see 3.3).
- (e) Width and length required (see 3.5).
- (f) Level of packaging and level of packing required (see 5.1 and 5.2).
- (g) Marking required (see 5.3).

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6.3 For civil agency procurements. When level B packaging is required for civil agency procurements, the level A requirements shall apply.

6.4 Type II, felt back linoleum, is not recommended for tops having sharp curves or bull-nose designs which cause the linoleum to follow a tight radius.

**MILITARY INTEREST**Custodians:

Navy—YD

Army—GL

Air Force—69

Review:

Navy—YD

Army—GL

Air Force—69

User:

Navy—SH, MC, CG

Code "C"Preparing activity:

Navy—YD

Civilian Agencies Interest:

GSA—FSS

Review and user information is current as of the date of this document. For future coordination of changes to this document, draft circulation should be based on the information in the current Federal Supply Classification Listing of DOD Standardization Documents.

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NAVY DEPARTMENT

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DD FORM 1426 1A 0101-807-2000 REPLACES NAVSHIPS FORM 4863, WHICH IS OBSOLETE  
APR 63