

L-C-001369(GSA-FBS)
December 10, 1969

INTERIM FEDERAL SPECIFICATION
 CUSHION, CARPET AND RUG, BONDED
 URETHANE

This Interim Federal Specification was developed by the Federal Supply Service, General Services Administration, Washington, D C. 20406, based upon currently available technical information. It is recommended that Federal agencies use it in procurement and forward recommendations for changes to the preparing activity at the address shown above

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for carpet and rug cushion underlay made of bonded urethane.

1.2 Classification The cushion covered by this specification shall be of the following classes

- Class 1 - Firm.
- Class 2 - Medium.

2. APPLICABLE DOCUMENTS

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

Federal Specifications

- PPP-B-591 - Boxes, Fiberboard, Wood-Cleated
- PPP-B-601 - Boxes, Wood, Cleated-Plywood
- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
- PPP-B-636 - Box, Fiberboard.
- PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple Wall.

Federal Standards

- Fed Std No 123 - Marking for Domestic Shipment (Civilian Agencies)
- Fed. Test Method Std No 191 - Textile Test Methods
- Fed. Test Method Std No 601 - Rubber 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 Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, D C, Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, Washington

(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 Specifications

- MIL-L-10547 - Liners, Case, and Sheet Overwrap, Water-Vaporproof or Waterproof, Flexible.

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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 documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM) Standards

D 1564-64T - Testing Slab Flexible Urethane Foam.

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

National Classification Board

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., ATTN: Tariff Order Section, 1626 P Street N.W., Washington, D. C. 20036.)

Uniform Classification Committee

Uniform Freight Classification

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

REQUIREMENTS

3.1 Preproduction sample When specified (6.1), a preproduction sample of the cushion, measuring one foot square shall be submitted to the contracting officer for approval.

3.2 Standard sample When a standard sample is available, the finished cushions shall match the standard sample for appearance and general workmanship and shall be equal to or better than the standard sample in respect to all characteristics for which the standard sample is referenced.

3.3 Material

3.3.1 Bonded urethane sheets The sheets shall be made from trim generated from urethane foam product manufacture (not used after manufacture) which has been granulated and bonded to form a porous foam material and fabricated into foam sheets. The ground particles shall not exceed 3/8 inch in greatest dimension. The binders used shall be 100 percent urethane solids (100 percent pure-no other matter included). Heat or pressure, or a combination of both shall be used in the bonding process. The sheet shall contain not more than 50 percent of granulated polyester foam in dry weight ratio to the granulated polyether.

3.3.2 Facing The facing, when required, shall be a woven or nonwoven cloth, or plastic sheeting or surface, or a combination of these.

3.4 Construction The cushion shall be cut from the bonded urethane sheet material specified in 3.3.1. The cushion shall have flat and parallel surfaces. All edges shall be straight. When specified in the contract or order (6.1), the cushion shall have a facing (3.3.2) attached or applied to one surface of the cushion. The facing shall cover the surface to which applied entirely. Facing may be used when not specified in the contract or order.

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3.5 Physical requirements. The finished cushion shall conform to the requirements specified in Table I when tested as specified in 4.4.

TABLE I. Physical requirements

Characteristic	Requirement	
	Class 1	Class 2
Compression load deflection, lbs. per sq. inch	0.9 to 1.2	0.6 to 0.9
Compression set, percent maximum	15	15
Static fatigue.	$\frac{1}{5}$	$\frac{1}{5}$
Height loss, percent maximum	$\frac{1}{5}$	$\frac{1}{5}$
Load deflection loss, percent maximum	25	25
Tensile strength, lbs. per sq. inch minimum	7	5
Elongation, percent minimum	70	60

^{1/} There shall be no physical breakdown of the cellular structure by visual examination.

3.6 Size. The cushion shall be furnished in roll form as full length pieces, or as individual pieces cut to special size. Unless otherwise specified, the full length pieces shall be not less than 30, 50 or 100 feet in length and the widths shall be 54 or 72 inches wide, as specified in the contract or order (6.1). The length and width of special cut sizes shall be as specified (6.1). The width tolerance for full length rolls shall be + 1/2 inch and minus 1/8 inch. The tolerances for special cut sizes shall be +1/2 inch and -1/8 inch for both the width and length.

3.7 Thickness. The thickness of the cushion shall be 3/8, 7/16 or 1/2 inch, as specified in the contract or order (6.1). Tolerance shall be plus or minus 1/32 inch.

3.8 Weight. The weight of the cushion for the specified thickness shall be as follows:

Thickness (in.)	Weight, oz. per sq. yd., minimum	
	Class 1	Class 2
3/8	29	25
7/16	34	29
1/2	39	33

3.9 Workmanship. Cushions shall conform to the quality and grade of product established by this specification. The occurrence of defects shall not exceed the applicable acceptable quality levels (AQL's).

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 that supplies and services conform to prescribed requirements.

4.2 Preproduction sample inspection. When a preproduction sample is required, inspection shall be made of the completed end item for conformance with all provisions of this specification.

4.3 Inspection for acceptance. Inspection shall be performed in accordance with the provisions set forth in MIL-STD-105, except where otherwise indicated.

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4.3.1 Testing of components Testing shall be performed on the components listed in Table II. The sample unit shall be of sufficient size to conduct the required test. The sample size shall be as specified in Table III. The lot size shall be expressed in terms shown in Table II.

TABLE II. Component testing

Component and lot size expressed in terms of	Characteristic	Requirement paragraph	Test method
Binder (ounces)	Material identification	3.3.1	1'

1' Standard commercial test. May be accepted based on contractor's certification of compliance

TABLE III. Sample size

Lot size (units)	Sample size
800 or less	2
801 to 22,000	3
22,001 and over	5

4.3.2 Intermediate inspection Random selection shall be made of ground particles and measurements taker to determine conformance with requirements specified in 3.3.1. Two handfuls of ground particles shall be the sample unit. A minimum of five particles shall be selected from each handful and measured. The sample size shall be as specified in Table III. The average measurement shall be determined for each five particles taken from a handful. An average for the five particles in excess of the requirement specified in 3.3.1 shall be considered as a failure of the sample unit. The lot shall be unacceptable if one or more sample units fail to meet the specified requirement. The lot size shall be expressed in units of ounces.

4.3.3 Examination of the end item Defects found during the visual examination shall be classified in accordance with 4.3.3.1 and 4.3.3.2.

4.3.3.1 Visual examination The defects listed in Table IV shall be counted regardless of their proximity to one another, except where two or more defects represent a single local condition of the cushion, in which case only the more serious defect shall be counted. In full length rolls continuous defects shall be counted as one defect for each yard or fraction thereof in which they occur. The sample unit shall be 1 linear yard when full length rolls are specified and one piece when special cut sizes are specified. The acceptable quality level shall be 2.5 defects per hundred units. The inspection level shall be level I. The lot size shall be expressed in units of 1 linear yard when full length rolls are specified and one piece when special cut sizes are specified. When examination is made of full length rolls, not more than two thirds of the total sample variance shall be examined in any one roll. When the lot consists of less than 5 rolls, an approximate equal number of yards shall be examined on each roll to yield the sample yardage.

TABLE IV. Defects

Cut, hole or tear - any size
High place or lump
Dart, or stained.
Thin or wear place.
Objectionable odor
Tack
Crack or split
Embedded foreign matter
Protruding foreign matter
Surfaces not flat or parallel
Edges not straight
Construction of facing not as specified.
Facing not covering entire surface of cushion

4.3.3.2 Length and width examination. Each roll or cut piece, as applicable, shall be examined for length and width. Any measurement found to be less than required shall be considered a defect. The sample unit shall be one roll or cut piece. The number of rolls or pieces examined for visual examination (4.3.3.1) shall be the sample size for this examination. The lot shall be unacceptable if one or more defects are found.

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4.4 Testing of the end item. Tests shall be performed for the characteristics specified in Table V. Unless otherwise specified, the physical and chemical values specified in section 3 apply to the average of the determinations made on a sample unit for test purposes in the applicable test method. The sample unit shall be 1 square yard for the full length rolls or one piece of the cushion, as applicable. The lot size for purposes of end item testing shall be expressed in units of square yards for full length rolls or pieces of cushion, as applicable. The sample size shall be as listed in Table III. The lot shall be unacceptable if one of more units fail to meet any requirement specified. Except as otherwise specified, test methods referenced are ASTM standards.

TABLE V End item testing¹

Characteristic	Requirement reference	Test method
Compression load deflection.	Table I	D1564-64T ² /
Compression set	Table I	D1564-64T ³ /
Static fatigue.	Table I	D1564-64T ⁴ /
Tensile strength	Table I	D1564-64T ⁵ /
Elongation	Table I	D1564-64T ⁵ /
Composition of urethane foam in cushion, qualitative and quantitative	3.3.1	Standard commercial ⁶ /
Thickness	3.7	12031 ⁷ /
Weight	3.8	5040 or 5041 ⁸ /

¹ May be accepted based on contractor's certificate of compliance for all characteristics, accompanied by actual test or other verifiable data. Tests shall be conducted on foam cushion without facing.

² Suffix D Determination shall be made on a specimen 2 inch by 2 inch by 1 inch thickness. Where necessary, thickness may be attained by plying up of specimens. After plying up, thickness of a ply or plies shall, where necessary, be reduced to attain 1 inch thickness.

³ Method B Determination shall be made on a specimen 2 inch by 2 inch by 1 inch thickness. Where necessary, thickness may be attained by plying up of specimens. After plying up, thickness of a ply or plies shall, where necessary, be reduced to attain 1 inch thickness. Specimens shall be compressed to 0.250 inch thickness for a period of 28 hours under ambient temperature. After 1 1/2 hour recovery, calculate the compression set as a percentage.

⁴ Suffix F, Procedure A Hold at 50 percent deflection in lieu of 75 percent.

⁵ Suffix T Cushion thickness shall be the specimen thickness.

⁶ Results of tests conducted on urethane sheets prior to cutting to cushion size and thickness may be accepted.

⁷ of Fed Test Method Std No. 601

⁸ of Fed Test Method Std No. 191. When method 5041 is used, one specimen with an area of at least 14 square inches shall be used.

5 PREPARATION FOR DELIVERY

5.1 Packaging Packaging shall be level A, B, or C, as specified (see 6.1)

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5.1.1 Level A or B. Each length of cushion, of like description, shall be tightly rolled, wrapped and headed with extensible kraft wrapping paper, minimum 90 pounds basis weight. When specified, items 6 feet wide or more shall be individually rolled on a pole or spirally wound core, commonly used for the purpose.

5.1.2 Level C. The cushion shall be packaged in accordance with the supplier's commercial practice.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.1).

5.2.1 Level A Cushions, of like description, packaged as specified in 5.1.1, shall be packed in a box conforming to PFP-B-591, Class II, PFP-B-601, overseas type, or PFP-B-621, Class 2. The box shall be lined with a water-proof case liner conforming to MIL-L-10547, sealed in accordance with the appendix thereto. The box shall be closed and strapped in accordance with the appendix to the applicable box specification.

5.2.2 Level B. Cushions, of like description, shall be packed in a box conforming to PFP-B-636, class domestic or PFP-B-640, class U. The box shall be closed and strapped in accordance with the appendix to the box specification. The gross weight shall be subject to the weight limitations of the box specification.

5.2.3 Level C The cushions, packaged as specified in 5.1, shall be packed to insure carrier acceptance and safe delivery to destination at lowest rates, in containers complying with the Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

5.3 Marking. In addition to markings required by the contract or order, the shipping containers shall be marked in accordance with Fed. Std. No. 123 or MIL-STD-129, as applicable.

6. NOTES

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

- (a) Title, number and date of this specification.
- (b) Class required (1.2)
- (c) When preproduction sample is required (3.1)
- (d) When facing is required (3.4).
- (e) Size (length and width) required (3.6).
- (f) Thickness required (3.7).
- (g) When pole or spirally wound core required (5.1.1).
- (h) Selection of applicable levels of packaging and packing (5.1 and 5.2)

6.2 Standard sample. For access to the standard sample, when available, address the procuring office issuing the invitation for bids

GENERAL SERVICES ADMINISTRATION - FEDERAL SUPPLY SERVICE
SPECIFICATION COMMENT SHEET

BUDGET BUREAU NO
29-R0175

INSTRUCTIONS

This form provides a way for users of this specification to inform the originator of problems encountered in its use. It is not to be used to request changes to accommodate proprietary features. All comments will be considered and appreciated, but please do not expect a reply. To comment detach, complete, fold, staple, and mail.

NOTE: Comments on this form do not constitute or imply authorization to waive any part of the document or serve to amend contractual requirements.

1 SPECIFICATION

L-C-001369(GSA-FSS) Cushion, Carpet and Rug, Bonded Urethane

2 CONTRACT NO (If any)

3 QUANTITY ON CONTRACT (Optional)

4 DOLLAR VALUE (Optional)

5 GENERAL NATURE OF PROBLEM (e.g. inspection difficulties, manufacturers unable to meet tolerances, containers collapse under normal warehousing conditions, etc.)

6 SPECIFIC REQUIREMENTS AFFECTED (Include paragraph number and lines of wording)

7 SPECIFIC PROBLEMS (e.g. tests in 4.2.2 will not assure that the battery will last required time, temperature ranges in table 2 do not conform to commercially available items.)

8 RECOMMENDATIONS

9 NAME OF MANUFACTURER ASSOCIATION GOVT AGENCY ETC

10 ADDRESS (Number, Street, City, State and Zip Code)

11 NAME AND TITLE OF SUBMITTER

12 DATE

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