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February 9, 1973
SUPERSEDING
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September 22, 1970

FEDERAL SPECIFICATION

COATING, TEXTURED (FOR INTERIOR AND EXTERIOR MASONRY SURFACES)

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 coatings having a masonry-like textured finish for application on formed concrete, concrete, concrete block, stucco, and brick.

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

Type I - For interior application.
II - For exterior application.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues 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:

SS-C-621 - Concrete Masonry Units, Hollow and Solid, Prefaced and Unglazed.
SS-S-346 - Siding (Shingles, Clapboards, and Sheets) Asbestos-Cement.
TT-F-1098 - Filler, Surface, Styrene-Butadiene, Filler for Porous Surface (Cinder Block, Concrete Block, Concrete, Stucco, etc.).
TT-P-143 - Paint, Varnish, Lacquer, and Related Materials; General Specification for Packaging, Packing and Marking.

Federal Standards:

Fed. Test Method Std. No. 141/GEN - Paint, Varnish, Lacquer and Related Materials, Methods of Inspection, Sampling and Testing.
Fed. Std. No. 595A - Colors.

(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, DC 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, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(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 Standard:

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

(Copies of Military Specifications and Standards required by contractors in connection with specification 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 2086 - Determination of Low Concentration of Lead in Paint.
D 2794 - Resistance of Organic Coatings to the Effects of Rapid Deformation.
E 96 - Water Vapor Transmission of Materials in Sheet Form.

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

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Materials. The manufacturer is given wide latitude in the selection of raw materials and process of manufacture, provided that the paint supplied meets the requirements of this specification. Materials shall be of the best quality used in good commercial practice and entirely suitable for the purpose intended under normal conditions of use. The coating shall be ready-mixed and the applied paint shall produce a rough finish which shall completely hide the substrate. The coating shall not contain lead in excess of 0.5 percent by weight of total nonvolatile matter. The solvents or solvent system used in the process shall comply with Air Pollution Regulations "Rule 66"[1/]. A certificate of compliance to this effect is necessary.

3.2 Qualitative requirements for type I and II coatings.

3.2.1 Condition in container. The coating as received shall be ready-mixed and shall show no evidence of mold growth, skinning, livering, or hard settling of the pigment. The paint shall be of a consistency that it can be applied by brush or heavy-duty spray. Any settled pigment shall be readily dispersable by hand stirring to a homogeneous state.

3.2.2 Color. The color shall be as specified in the procurement document (see 6.2). When tested as in 4.4.2, the color shall match with standard chip in Fed. Std. No. 595.

3.2.3 Appearance, drying time, and resistance to sagging. The coating shall present a dry firm, uniformly textured finish after having been applied to a cement asbestos panel at a spreading rate of 50 ± 10 square feet per gallon and allowed to stand in a vertical position for 24 hours at 23°C ± 1°C and 50 ± 4 percent relative humidity. The coating shall show no evidence of sagging, running, wrinkling, or other film defects.

3.2.4 Flexibility. The coating shall show no evidence of cracking, chipping, or flaking when tested as specified in 4.4.3.

3.2.5 Impact resistance. When tested as specified in 4.4.4, the coating shall have a resistance to rapid deformation greater than 6-inch/pounds.

3.2.6 Storage stability. The product shall not settle hard or exhibit other undesirable qualities on storage for one year and shall be readily redispersed to a uniform consistency when tested in accordance with table II.

3.2.7 Fungus resistance. The type II coating shall show no fungus growth when tested in accordance with table II. When specified, the type I paint shall show no fungus growth when tested in accordance with table II.

3.3 Qualitative requirements for type II coating only.

1/ Information on "Rule 66" may be obtained from Air Pollution Control District, County of Los Angeles, Los Angeles, CA 90013.

3.3.1 Moisture Resistance. When tested as specified in 4.4.5, the coating shall show no evidence of blistering, loss of adhesion to masonry, or discoloration.

3.3.2 Accelerated Weathering. When tested as specified in 4.4.6, there shall be no checking, cracking, or loss of film integrity. White coating, when tested as specified, shall not darken more than four units as determined from the daylight directional reflectance. The yellowness index difference shall not be more than 0.06. Tints and medium colored paints, when tested as specified, shall not have a color change equivalent to a lightness index difference, L, greater than 2. When tested for chalking as specified in 4.4.6, the exposed panels shall have a resistance to chalking, rating not less than 8.

3.3.3 Resistance to wind-driven rain. When tested as in 4.4.7, the textured coating material shall be resistant to the passage of water. There shall be no visible water leaks, and if the rear face of the masonry block is damp, the gain in weight of the block shall be less than 0.2 pounds. For conformance to this test at least two of the three panels shall meet these requirements.

3.4 Quantitative requirements for types I and II coatings. The paint shall conform to the quantitative requirements specified.

TABLE I. Quantitative requirements of the coating

Characteristics	Requirement	
	Minimum	Maximum
Total solids, percent by weight of paint	60	---
Non-volatile vehicle, percent by weight of vehicle	35	---
Moisture vapor permeability, perms.	0.4	---
Dry opacity, contrast ratio, when applied at 50 ft^2/gallon	0.99	---
Lead(metal), percent by weight of total non volatile matter	---	0.5

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 the prescribed requirements.

4.2 Classification of inspection. Inspection shall be classified as follows:

(a) Production inspection of the paint.
(b) Inspection of preparation for delivery.

4.3 Production inspection.

4.3.1 Sampling and inspection. Sampling and inspection shall be in accordance with method 1031 of Fed. Test Method Std. 141.

4.4 Test procedure. The coating shall be tested in accordance with the following applicable methods of Fed. Test Method Std. No. 141 as indicated in table II and as hereinafter specified.

TABLE II. Test methods

Characteristics	Requirement reference	Test Method	
		Fed. Test Method Std. No. 141	Paragraph Reference
Condition in container	3.2.1	3011	4.4.1
Color	3.2.2	4250	4.4.2
Drying time	3.2.3	4061.1 1/	----
Flexibility	3.2.4	6221	4.4.3
Impact resistance	3.2.5	----	4.4.4

TABLE II. Test methods (Continued)

Characteristics	Requirement Reference	Test Method Fed. Test Method Std. No. 141	Test Method Paragraph Reference
Storage stability	3.2.6	3021, 3022	----
Fungus resistance	3.2.7	6271	----
Moisture resistance	3.3.1	----	4.4.5
Accelerated weathering	3.3.2	6152	4.4.6
Lightness index difference	3.3.2	6122	4.4.6
Yellowness index difference	3.3.2	6131	4.4.6
Daylight directional reflectance	----	6121	4.4.6
Chalking, degree of resistance to	3.3.2	6411	4.4.6
Resistance to wind-driven rain	3.3.3	----	4.4.7.1
Moisture vapor permeability	Table I	----	4.4.8
Nonvolatile content	Table I	4041	----
Vehicle solids	Table I	4052	----
Dry opacity	Table I	4121 2/	----
Lead content	Table I	----	4.4.9

1/ Examine panel also for appearance and resistance to sagging.
2/ Procedure A. Brush out coating uniformly at a spreading rate of 50 ft/gal. on hiding power chart and air dry for 24 hours before measurement

4.4.1 Condition in container. Examine the coating as received in accordance with method 3011 for compliance with 3.2.1.

4.4.2 Color. Apply the material to a cement-asbestos board at a spreading rate of 50 ± 10 square feet per gallon. Allow the coating to cure 48 hours and compare with the specified color in accordance with method 4250 of Fed. Test Method Std. No. 141.

4.4.3 Flexibility. The coating system shall be brushed on an electrolytic tin plate panel 3/ (method 2012) at a spreading rate of 50 ± 10 square feet per gallon and allowed to dry for 7 days. Bend the panel over a 1-inch mandrel and examine in accordance with method 6221 for compliance with 3.2.4.

4.4.4 Impact resistance. Coat tin panel (method 2012) at a spreading rate of 50 ± 10 square feet per gallon and allow to dry for 7 days at 23° ± 1°C. and at 50 ± 4 percent relative humidity. Using an impact tester, which employs a 1/2-inch diameter male punch and a 9/16-inch diameter female die 4/, place the panel with the painted side up and test according to the procedure of ASTM D 2794 for compliance with 3.2.5.

4.4.5 Moisture resistance. Prepare concrete block test panels in accordance with Fed. Test Method Std. No. 141, method 2051, procedure B. Apply coating at a spreading rate of 50 ± 10 square feet to troweled top surface of the test panel and allow to dry for 7 days at room temperature. Immerse the test panels in water to such a depth as to have the prepared surface about 1/2-inch above the surface of the water for 14 days. Remove, let dry and examine. Any evidence of loss of adhesion, discoloration, blistering, cracking, or flaking shall constitute failure of this test.

4.4.6 Accelerated weathering. Prepare test panels by applying the coating at a spreading rate of 50 ± 10 square feet per gallon to both sides and edges of panels cut to 2-3/4 by 9-inches approximate size from asbestos-cement shingles conforming to SS-S-346, type I. Allow to dry for 7 days at room temperature and then measure and record the daylight directional reflectance in accordance with method 6121 of Fed. Test Method Std. No. 141. Expose test panels for 400 hours to accelerated weathering in accordance with method 6152 of Fed. Test Method Std. 141. For white paint, determine the daylight directional reflectance before and after accelerated weathering, the lightness index difference, and the yellowness index difference. For tints and medium colors, determine the lightness index difference. Also, after exposure examine the panels for chalking and other film defects. The test for chalking shall be in accordance with method 6411. Nonconformance to the requirements specified in 3.3.2 shall constitute failure of this test.

3/ Q-Panel Company, 15601 Industrial Parkway, Cleveland, OH 44135.

4/ One commercial instrument that is available can be purchased from Gardner Laboratory Inc., P.O. Box 5728, 5521 Landy Lane, Bethesda, MD 20014.

4.4.7 Resistance to wind-driven rain.

4.4.7.1 Test panels. Three test panels shall be prepared by first brushing a filler conforming to TT-F-1098 at a spreading rate of 100 ± 10 square feet per gallon to one face of concrete masonry units of 8 by 16 by 2-inch nominal size (patio block) conforming to SS-C-621, type I, class 2, grade U. The filler coating shall be cured 2 days at room temperature. The textured coating shall be brushed over the filler coating at a spreading rate of 50 ± 10 square feet per gallon and allowed to dry at least three days under the same conditions.

4.4.7.2 Apparatus. The testing box is assembled from transparent plastic panels 1/2-inch thick and of the dimensions shown in figure 1. Three openings on the side, 6 by 12-inches, are provided so that the coated side of the three panels may be positioned for test. The openings on the top of the apparatus for the air inlet and manometer connection shall not be less than 3 inches apart to make certain that air inlet turbulence will not effect the manometer readings. A spray tube shall be constructed from 1/2-inch plastic tubing with three fish tail nozzles[1/]. Attachments to the testing box as shown in figure 2 include a water-filled U-tube manometer, source of compressed air, clamps and angle irons for securely fastening the test panels to the box, and a drain outlet. Also, illustrated in figure 2 is a simple air pressure regulator consisting of a T-tube with the leg (foot) of the tube placed in a water filled beaker at a depth of slightly greater than 5 inches. This simple set up is also a safety device. Any sudden increase in air pressure will be vented harmlessly.

4.4.7.3 Test procedure. The three masonry panels to be tested will be placed against the openings in the test box with the coated side facing the spray unit. Either rubber gaskets or a suitable caulking compound may be used to provide an air and water tight seal. The angle irons shall be positioned, as shown in figure 2, and clamped tightly. The water shall be started through the spray unit at a rate between 60 and 70 gallons per hour, as measured by the water discharged. The exact amount of water discharged shall be reported. After the drain opening is covered with discharging water the air supply shall be adjusted so that pressure produced inside the 5 inches as measured by the manometer. The test is made at 5 inches water pressure which is the equivalent dynamic pressure at 98 miles per hour wind velocity. Expose the test panels for 24 hours to the above mentioned conditions, unless there is obvious water penetration of the coated panels sooner than that. Examine for visible water leaks, and if the rear face of the masonry block is damp, determine the gain in weight of the block.

4.4.8 Moisture vapor permeability. The coating shall be applied at a spreading rate of 50 ± 10 square feet per gallon to a vapor permeable substrate having a permeance greater than 4 perms[2/]. The coating shall be allowed to dry at 23 ± 1°C and at 50 ± 4 percent relative humidity for 7 days. The coating system shall be tested for water vapor transmission according to procedure A of ASTM E 96 for compliance with 3.4.

4.4.9 Lead content. Determine lead content of the coating in accordance with ASTM D 2088 except that calculation shall be as follows:

$$\text{Lead(metal), percent by weight of total nonvolatile matter} = \frac{A \times 0.86623 \times B}{C \times W} \times 100$$

Where A = Grams of lead oxide (PbO_2).
B = Percent ash divided by 100.
C = Percent total nonvolatile divided by 100.
W = Grams of ash used.

4.4.10 Inspection of preparation for delivery. The coating shall be examined for compliance with packaging, packing, and marking requirements of section 5 in accordance with TT-P-143. Any container in the sample having one or more defects, or under required fill, shall be rejected, and if the number of defective containers in any sample exceeds the acceptance number of the appropriate sampling plan of MIL-STD-105, the lot represented by the sample shall be rejected.

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing, and marking. The coating shall be packaged, packed and marked in accordance with TT-P-143. The level of packaging shall be A, B, or C, and the level of packing shall be A, B, or C, as specified (see 6.2). The coating shall be furnished in 1 quart or 1 gallon multiple friction top cans, in 5 gallon lug cover steel pails or in 55 gallon steel drums as specified (see 6.2).

1/ Can be purchased from Atlas Electric Devices Company, 4114 Ravenswood Avenue, Chicago, IL 60613.
2/ The unsealed portions of penetration chart, (Form HK) obtained from the Leneta Company, P.O. Box 576, Ho-Ho-Kus, New Jersey 07423 are satisfactory for this purpose.

5.1.1 Direction for use. The manufacturer shall include specific directions for the preparation of surfaces, the application, and the equipment to be used (see 6.1.2).

5.2 Precautionary markings. In addition to the markings required by TT-P-143, all individual containers should have the following markings:

CAUTION: Adequate precaution should be taken when spraying.

6. NOTES

6.1 Intended use. The coating covered by this specification is intended for interior and exterior masonry surfaces where a textured appearance is desired. Purchasers requiring a specific character of texture should reach an agreement on this point with the supplier.

6.1.1 Surface preparation. The surface must be clean, dry, and free of oil, grease, form release agents, etc. prior to coating application. Old paint (loose or tight) and efflorescence should be removed; chalked surfaces should be cleaned; all mortar joints and major defects should be repaired or filled following manufacturer's recommendations. Porous masonry blocks should be filled with a filler coat such as TT-F-1098 or a filler coat system recommended by the manufacturer before coating application.

6.1.2 Application. Application of the coating covered by this specification may require skills and special spray equipment. Therefore, it is advisable to engage an applicator known to be so qualified. Suppliers of the textured coating should be able to recommend an applicator experienced in the use of their products.

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 this specification.
(b) Type (see 1.2).
(c) Color required (see 3.2.2).
(d) Level of packaging and packing required (see 5.1 and 5.2).
(e) Quantity required (see 5.1).

6.3 Unit of purchase. The unit of purchase shall be one (1) U.S. Gallon which is equal to 231 cubic inches.

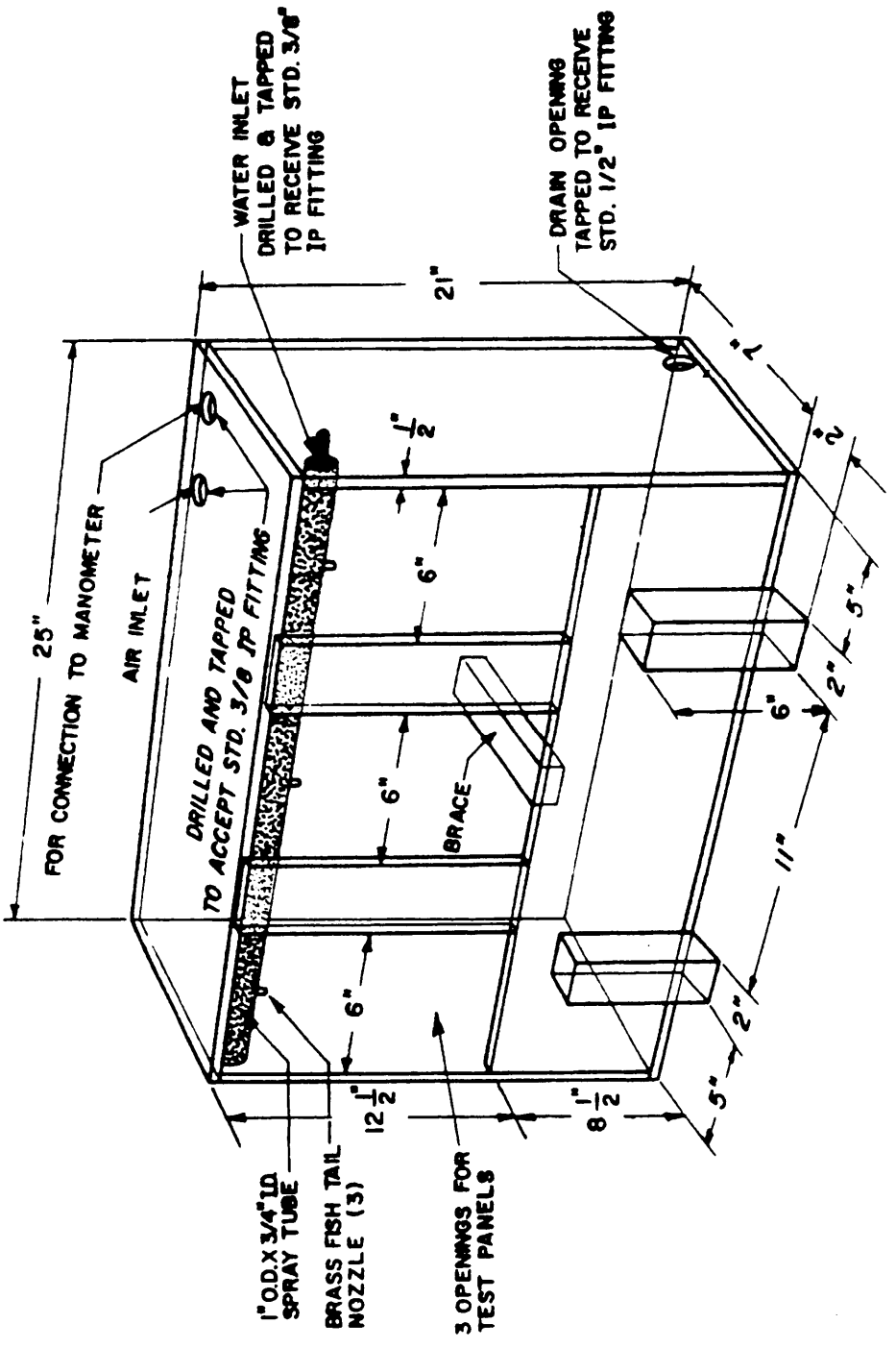

FIGURE 1. Dimensions of test box.

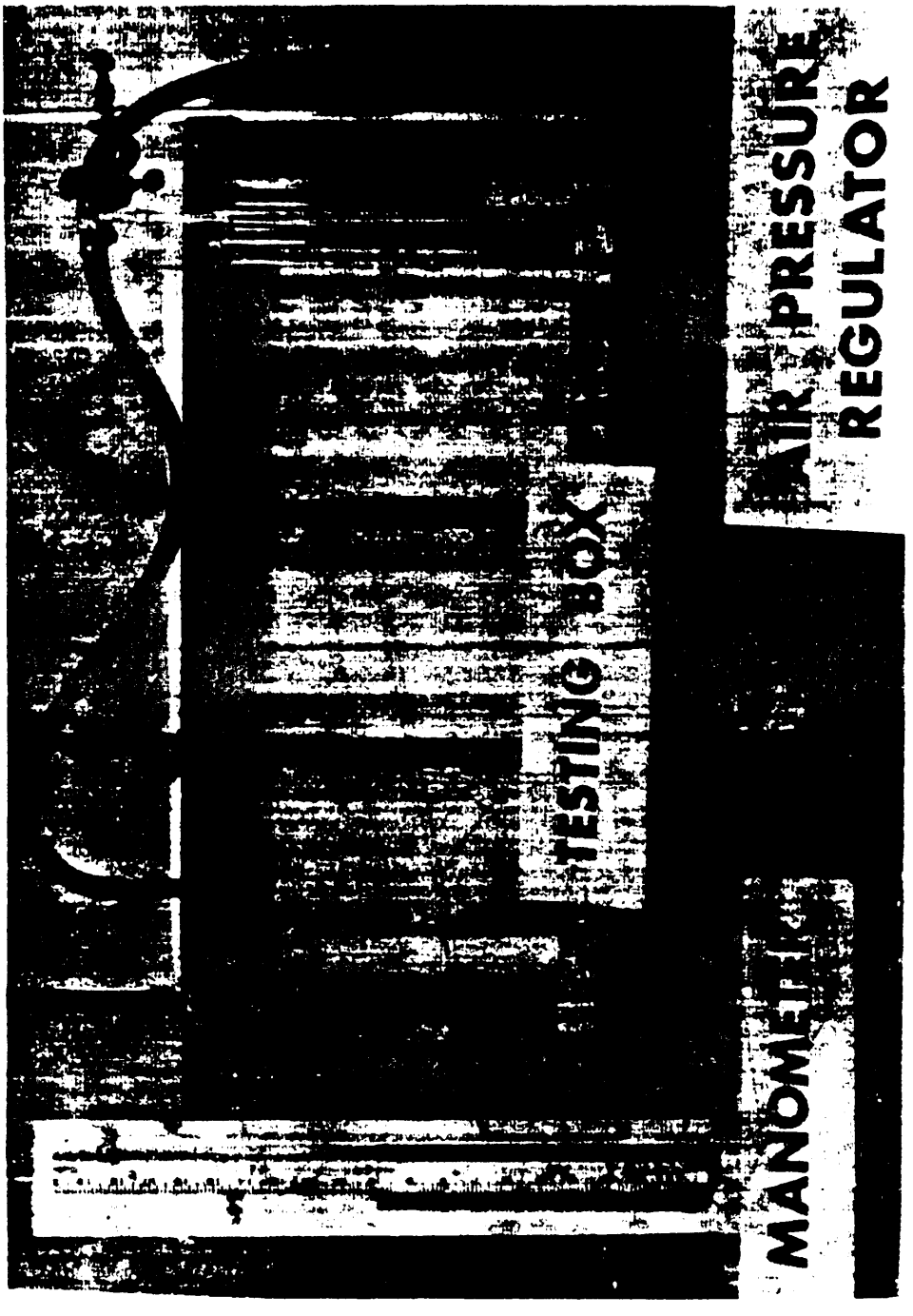

FIGURE 2. Wind driven test box

Military Coordinating Activity

Navy - CG

CIVILIAN AGENCIES COORDINATING ACTIVITIES

COMMERCE - NBS
DOT - RDS
GSA - FSS, PBD
HEW - NIH
HUD - HHE
VA - DMS
INTERIOR - BOR
POSTAL - POS
DC GOVT - DGS

Preparing activity:

COM - NBS

Orders for this publication are to be placed with the General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. **Price 10 cents each.**

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AMENDMENT-1
August 5, 1975

FEDERAL SPECIFICATION

COATING, TEXTURED (FOR INTERIOR AND EXTERIOR MASONRY SURFACES)

This amendment, which forms a part of Federal Specification TT-C-555B dated February 9, 1973, was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

PAGE 3

Table I, under Characteristics, line 3, change "Moisture vapor permeability, perms" to "Permeance, metric perms".

PAGE 5

Paragraph 4.4.9, delete the calculation and substitute the following:

$$\text{Lead (percent by weight of total nonvolatile)} = \frac{A \times 0.86623}{B} \times 100$$

Where: A = Grams of lead oxide (PbO_2) in ash.
B = Grams of total nonvolatile of paint or dried paint film.

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