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MIL-PRF-23653C(SHIPS)
21 September 1972
SUPERSEDING
MIL-P-23653B(SHIPS)
21 October 1968
(See 6.5)

PERFORMANCE SPECIFICATION

PLASTIC TILES, VIBRATION DAMPING

1. SCOPE

1.1 Scope. This specification covers three classes of flexible, water and fuel-resistant, fire-retardant plastic tiles for damping the flexural vibration of metal structures on shipboard.

1.2 Classification. The plastic tiles shall be of the following classes, as specified in the contract or order (see 6.2):

- Class 1 - For damping vibration of steel plates in temperature range of 35°F. to 55°F. (1.7° to 12.8°C.).
- Class 2 - For damping vibration of steel plates in temperature range of 55°F. to 80°F. (12.8° to 26.7°C.).
- Class 3 - For damping vibration of steel plates in temperature range of 80°F. to 155°F. (26.7° to 68.3°C.).

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

PPP-B-636 - Box, Fiberboard.

MILITARY

MIL-P-116 - Preservation, Methods of.

MIL-T-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.

STANDARDS

FEDERAL

FED-STD-406 - Plastics: Methods of Testing.

MILITARY

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

(Copies of specifications, standards, drawings, and publications required by suppliers 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 otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D635-68 - Test for Flammability of Self-Supporting Plastics.

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

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.)

(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.)

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3. REQUIREMENTS

3.1 Qualification. The plastic vibration damping tiles furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.2 and 6.3).

3.2 Materials. The formulations for the tiles shall consist of the ingredients necessary to obtain the damping characteristics and physical properties herein described.

3.2.1 Toxicity. Vibration damping tiles furnished under this specification shall not emit nauseous, irritating, or toxic volatile matter or aerosols when the tile is heated to any temperature up to 100°C. (212°F.).

3.3 Weight. The average weight of the tiles shall be 2.8 ± 0.1 pounds per square foot or 4.5 ± 0.2 pounds per square foot, as specified in the contract or order (see 6.2).

3.4 Dimensions. Unless otherwise specified in the contract or order (see 6.2), the tiles shall be $12 \pm 1/16$ inches by $12 \pm 1/16$ inches in width and length. The nominal but not limiting thickness is $3/8$ inch for tiles having a weight of 2.8 pounds per square foot, and $5/8$ inch for tiles having a weight of 4.5 pounds per square foot. Tiles supplied under one contract or order from one manufacturer shall not differ in thickness by more than $1/16$ inch. Tiles shall be of uniform thickness, square, and edges shall be perpendicular to faces.

3.5 Flame retardance. When tested as specified in 4.5.3, the tiles shall be rated at least self-extinguishing.

3.6 Fuel and water resistance. When tested as specified in 4.4.4, the tiles shall not experience a gain in weight of more than 0.2 percent as a result of immersion in JP-5 fuel conforming to MIL-T-5624 or more than 0.5 percent as a result of immersion in distilled water.

3.7 Adhesion. When tested as specified in 4.4.5, the bond strength between the tile and the adhesive shall be equal to or greater than the cohesive strength of the tile. The average cohesive strength of the tile shall be not less than is shown below:

Class 1 - 80 psi. (pounds per square inch)
Class 2 - 250 psi.
Class 3 - 300 psi.

3.8 Vibration damping characteristics.

3.8.1 Initially. When tested initially, as specified in 4.4.6, the tile shall conform to the vibration damping characteristics specified in tables I, II, and III, as appropriate.

3.8.2 Aged. When tested after being aged as specified in 4.4.6, the tiles shall conform to the vibration damping characteristics specified in tables I, II, and III, as appropriate, and individual values shall not decrease more than 30 percent from the initial values.

3.9 Hardness. When tested as specified in 4.4.7, the average Shore hardness of the tiles shall not vary more than plus or minus 10 Shore units from the values obtained on tiles submitted for qualification tests.

3.10 Stability. When tested as specified in 4.4.8, the tiles shall have a short-time stability (R) of no more than 0.7.

3.11 Permanent compressibility. (Class 1 only) When tested as specified in 4.4.9, the decrease in volume of the tiles shall not be more than 5 percent.

3.12 Identification. Two adjacent edges of each tile shall be marked with one coat of paint or lacquer to identify the class of the tile. The marking shall be at least $1/4$ -inch wide. The paint shall not become sticky due to migration of plasticizers from within the tiles. (Acrylic type paints have been found satisfactory for this purpose.) The identifying colors shall be as follows:

Class 1 - Blue
Class 2 - White
Class 3 - Red

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Table I - Class 1 tiles, vibration damping characteristics.

Lengthwise flexural mode number	Nominal frequency at 55°F. of 3/8 in. x 3 in. x 40 in. covered bar Hz. (hertz)	Percent critical damping (minimum) at indicated temperatures	
		35°F.	55°F.
1	45	6.0	2.5
3	275	7.0	6.0
5	710	5.5	6.5
7	1330	4.0	6.0
9	2100	3.5	4.5
11	3015	2.5	4.0
13	4050	2.0	3.5

Table II - Class 2 tiles, vibration damping characteristics.

Lengthwise flexural mode number	Nominal frequency at 55°F. of 3/8 in. x 3 in. x 40 in. covered bar Hz.	Percent critical damping (minimum) at indicated temperatures	
		55°F.	75°F.
1	45	7.0	2.0
3	260	7.5	5.0
5	670	7.0	6.5
7	1250	5.0	6.0
9	1990	4.0	5.0
11	2890	3.5	5.0
13	3830	3.0	4.5

Table III - Class 3 tiles, vibration damping characteristics.

Lengthwise flexural mode number	Nominal frequency at 115°F. of 3/8 in. x 3 in. x 40 in. covered bar Hz.	Percent critical damping (minimum) at indicated temperatures			
		95°F.	115°F.	135°F.	155°F.
1	50	6.0	5.0	2.0	---
3	305	6.0	7.0	5.0	1.0
5	770	4.5	6.0	5.5	2.0
7	1425	4.5	6.0	6.0	3.0
9	2220	3.5	5.0	5.0	3.0
11	3200	3.5	5.0	5.0	3.0
13	4290	3.5	5.0	5.0	3.0

3.13 Workmanship. The tiles shall be examined for defects and workmanship. The finished tiles shall be free of segregated particles. Blisters not exceeding 1/16-inch in height, minor surface voids, and minor cracks will not be cause for rejection. Surfaces shall be free of wax or other substances which may interfere with subsequent adhesion.

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 in the contract or order, the supplier 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 assure supplies and services conform to prescribed requirements.

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4.2 Qualification. ^{1/}Qualification tests shall be conducted at a laboratory satisfactory to the Naval Ship Engineering Center. Qualification tests shall consist of the examination of 4.3.3 and all the tests of 4.4.

4.2.1 Samples for qualification tests. The samples for qualification testing shall consist of ten tiles, each 12 inches by 12 inches and weighing 4.5 pounds per square foot.

4.3 Quality conformance.

4.3.1 Identification of lot. For purposes of sampling, examinations, and tests for quality conformance, a lot shall consist of all the tiles, not exceeding 500 square feet of material, produced in one plant under essentially the same conditions, and offered for delivery at one time.

4.3.2 Sampling for quality conformance. For the examination and tests specified in 4.3.3 and 4.3.4, ten tiles shall be selected at random from each lot of tiles furnished under a contract or order.

4.3.3 Quality conformance examination. Each of the tiles selected in accordance with 4.2.1 and 4.3.2, as appropriate, shall be examined for identification marking and visual defects and workmanship to determine conformance with 3.12 and 3.13.

4.3.3.1 Rejection. If any of the 10 tiles in the sample is found not to be in conformance with the requirements of this specification, an additional set of 10 tiles shall be taken from the lot of tiles. If any of the 10 tiles in the second sampling is found not to be in conformance with the requirements of this specification this shall be cause for rejection of the entire lot.

4.3.4 Quality conformance tests. Sufficient tiles shall be taken from those selected in accordance with 4.3.2 and tested to determine conformance with the following requirements:

<u>Requirement</u>	<u>Paragraph</u>
Weight	3.3
Dimensions	3.4
Hardness	3.9
Permanent compressibility (class 1 only)	3.11

4.3.4.1 Rejection. If any of the tiles representing a lot is found not to be in conformance with the requirements of this specification, this shall be cause for rejection of the entire lot represented by the tile.

4.4 Test procedures.

4.4.1 Weight. The weight of each of the 10 tiles in the sampling shall be measured to the nearest 0.01 pound and the ten results averaged to determine conformance to 3.3.

4.4.2 Dimensions. Each of the 10 tiles shall be conditioned at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$) for at least 16 hours. The dimensions of each of the tiles shall be measured at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$) by the following procedure to determine conformance to 3.4. The tile shall be laid on a flat surface and measured for length and width with a steel ruler graduated in 1/64-inch units. The thickness of the tile shall be measured with a deep-throat micrometer at not less than six points distributed over the area. The average of the six or more thickness readings shall be computed and considered to be the thickness of the tile.

4.4.3 Flame retardance. Flame retardance required by 3.3 shall be determined in accordance with ASTM D635-68 except that no wire gauze shall be mounted beneath the specimen and only three specimens cut from the same tile shall be tested. Each of the three specimens shall be rated at least self-extinguishing. If any of the specimens is not at least self-extinguishing, the procedure in the ASTM method which specifies tests in groups of ten specimens (cut from the same tile) shall be followed.

^{1/} Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.3 and 6.4).

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4.4.4 Fuel and water resistance. To determine conformance to 3.6, six specimens, each measuring 1 inch by 3 inches, shall be cut from one tile. Three samples shall be immersed in JP-5 jet fuel that meets the requirements of MIL-T-5624, and three samples shall be immersed in distilled water. At least one liter of test fluid shall be employed and each specimen shall be isolated so that all surfaces are exposed to the test fluid and immersion is complete. The samples shall be weighed to the nearest 0.01 gram prior to immersion. Immersion shall continue at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$) for $96 \pm 1/2$ hour. Upon completion of this period, the specimens shall be removed from the immersion media, excess fluid wiped off, and the sample weighed again immediately. Percent weight change shall be computed from the following equation:

$$\text{Percent weight change} = \frac{\text{Final weight} - \text{initial weight}}{\text{initial weight}} \times 100$$

The results from the three specimens for a given immersion medium shall be averaged.

4.4.5 Adhesion. Conformance to 3.7 shall be determined by the procedure given below.

4.4.5.1 Specimen preparation. Three discs, each 4 inches in diameter, shall be cut from one of the tiles. One face of each disc shall be bonded with Chemlok 301^{2/} or equivalent, to a steel disc 1/2-inch thick by 4 inches in diameter which has been cleaned by sandblasting. The opposite face of the steel disc shall have a centrally located threaded stud 1/2-inch diameter by 1-inch long. A steel disc, 1.597 ± 0.005 inch diameter by 1/2-inch thick, with a threaded stud on one face shall be cleaned by sandblasting and then bonded with Chemlok 301^{2/} or equivalent, in a central position to the opposite face of the tile disc. The adhesive shall be applied to the steel discs only with a notched trowel. The notches in the trowel shall be equilateral triangles 3/16-inch deep. The triangles shall intersect each other. The tile disc shall be pressed firmly down onto the prepared surfaces. The assembled specimens shall be allowed to set at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$) for at least 96 hours prior to testing for adhesion. A drawing of an assembled test specimen is shown in figure 1.

4.4.5.2 Testing. The test specimen shall be placed in a tension testing machine and the force required to separate the small disc from the specimen determined. The rate of separation of the disc from the specimen shall not exceed 1 inch per minute. The test shall be repeated on each of the 3 specimens at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$). The results from the three specimens shall be averaged.

4.4.6 Vibration damping characteristics. Conformance to 3.8 shall be determined by the procedure described below.

4.4.6.1 Test specimens. The test specimens for determining vibration damping characteristics shall be the following:

- (a) Three flat steel bars, each 3/8 inch by 3 inches by 40 inches.
- (b) Three flat steel bars, each 3/8 inch by 3 inches by 40 inches, with strips of the tiles completely covering one 3 by 40 inch face on each bar (bars from (a) may be used after measurement of bare-bar damping characteristics).

The tile strips shall be bonded to the sandblasted faces of the steel bars using the procedure detailed in 4.4.5.1. The assembled test specimens shall be allowed to set at $80^{\circ} \pm 9^{\circ}\text{F.}$ ($27^{\circ} \pm 5^{\circ}\text{C.}$) for at least 96 hours prior to temperature conditioning for the vibration tests.

4.4.6.2 Testing. The equipment and procedure for determining the vibration damping characteristics of the test specimens listed in 4.4.6.1 are given in the following paragraphs. The bare bars shall be conditioned at about $75^{\circ} \pm 2^{\circ}\text{F.}$ ($23.0^{\circ} \pm 1.1^{\circ}\text{C.}$) for at least 2 hours and tested at this temperature. The covered bars shall be conditioned and tested at each of the temperatures specified in tables I, II, and III as appropriate. Each of the latter temperatures shall be maintained during conditioning and testing with a precision of $\pm 2^{\circ}\text{F.}$ ($\pm 1.1^{\circ}\text{C.}$). The conditioning interval shall be at least 16 hours prior to testing.

^{2/} Chemlok 301 is manufactured by the Hughson Chemical Co., Erie, Pennsylvania.

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4.4.6.2.1 Accelerated aging. After completion of the initial damping measurements, the test bars shall be placed in a forced-draft oven for 168 ± 1 hour at $212^\circ \pm 2^\circ\text{F}$. ($100 \pm 1.1^\circ\text{C}$). Vibration damping measurements shall then be repeated at each of the temperatures specified in tables I, II, and III, as appropriate.

4.4.6.2.2 Equipment. An arrangement of instruments that has been used and found satisfactory for this test is shown in figure 2. Other manufacturer's models of similar instruments having equivalent characteristics may also be satisfactory.

4.4.6.2.3 Procedure.

4.4.6.2.3.1 Vibration damping tests shall be conducted by the method of the decay rate of free vibrations. A bar shall be suspended edgewise from two light nylon or cotton cords at least 24-inches long and attached to the bar at the approximate nodal points of the first flexural mode of vibration.

4.4.6.2.3.2 Excitation of the bar shall be by an electrodynamic vibration exciter. The exciter shall be securely attached to the flat face of the bar at the intersection of the longitudinal center line and the vertical center line. An audio oscillator shall be used to drive the vibration exciter. The excitation shall be adequate to provide an accelerometer signal 40 decibels above the equivalent noise in the sensing electrical circuit. The amplitude of the driving voltage shall be monitored with a vacuum tube voltmeter. The frequency of the output voltage from the oscillator shall be monitored with an electronic counter.

4.4.6.2.3.3 An accelerometer weighing no more than one ounce and having a resonance frequency of 20 kilohertz per second or higher shall be used to sense the vibration decay. The accelerometer shall be attached opposite to the attachment of the vibration exciter. It is permissible to remove sufficient damping tile to permit necessary attachment. The output of the accelerometer shall be fed successively through a preamplifier, an amplifier, and a logarithmic translator to a cathode-ray oscilloscope adapted by design or supplemental attachment to measure the decay rate. The recording circuit shall be checked by electrical impulse excitation to determine that it can sense decay rates corresponding to at least 15 percent of critical damping. Insertion of an octave band filter between the amplifier and the oscilloscope is desirable, provided it does not adversely affect the limiting decay rate.

4.4.6.2.3.4 The free bar shall be excited at each of the odd-numbered, lengthwise flexural modes of the bar as required in tables I, II, and III. Care should be exercised to identify the modes excited and to avoid torsional, longitudinal, and combined modes. Care should also be taken to prevent over-loading any parts of the exciting and sensing electrical circuits to eliminate spurious results. It is also important that the alignment of the vibration exciter be such that the direction of excitation is normal to the face of the test bar to which the vibration exciter is attached. After connecting the instrumentation as shown in figure 2, but prior to measuring damping properties, it will be helpful to sweep the frequency range and obtain an X-Y plot of the resonance response of the test specimen. Distortion due to either misalignment of the vibration exciter or overdriving of the electrical systems will result in non-symmetry of the resonance responses.

4.4.6.3 Calculation. The percents of critical damping at each mode found for the three bare bars at 75°F . shall be averaged. Likewise, the percents of critical damping at each mode found for the three coated bars at each of the test temperatures shall be averaged. The corrected percents of critical damping for comparison with the requirements in tables I, II, and III shall be calculated using the following equation:

$$\text{Percent of critical damping (corrected)} = D_c - D$$

where: D_c is the averaged dampings of the coated bars at the specified mode and temperature

D is the averaged dampings of the bare bars at the specified mode and 75°F . (23.9°C .)

4.4.7 Hardness. To determine conformance to 3.9, the hardness of the tiles shall be found at $73.5^\circ \pm 2^\circ\text{F}$. ($23^\circ \pm 1.1^\circ\text{C}$.) on whole tiles which have been conditioned at this temperature for at least 16 hours. This test shall be performed on class 1 and class 2 tiles in accordance with method 1082 and on class 3 tiles in accordance with method 1083 of FED-STD-406. The durometer shall be read 15 seconds after the presser foot makes firm contact with the tile. Hardness measurements shall be made at five points. Each test point shall be spaced at least 2-1/2 inches from any other test point. The average of the five determinations shall be reported.

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4.4.8 Stability. The short-time stability of the tiles shall be found in accordance with method 7051 of FED-STD-406 to determine conformance to 3.10.

4.4.9 Permanent compressibility (class 1 only). To determine conformance to 3.11, the percent decrease in volume of a tile caused by 22 hours at 1000 p.s.i.g. water pressure shall be found. The volume of the tile in cubic centimeters shall be measured at $80^{\circ} \pm 9^{\circ}\text{F}$. ($27^{\circ} \pm 5^{\circ}\text{C}$.) by weighing the tile in air and in water with a balance sensitive to 0.1 gram. This measurement shall be repeated within 1 hour after exposing the tile to the hydraulic pressure at ambient room temperature. The percent decrease in volume shall be calculated as follows:

$$\text{Percent decrease in volume} = \frac{V_1 - V_2}{V_1} \times 100$$

Where: $V_1 = W_1 - W_2$

$V_2 = W_3 - W_4$

W_1 = weight of tile in air before pressure treatment

W_2 = weight of tile in water before pressure treatment

W_3 = weight of tile in air after pressure treatment

W_4 = weight of tile in water after pressure treatment

This test shall be performed on three whole tiles. The average of the results shall be reported.

4.4.10 Toxicity. A manufacturer of vibration damping tile shall disclose the formulation of his product to the Naval Ship Engineering Center, Materials Development and Applications Office, Department of the Navy, Hyattsville, Maryland 20782, or to an activity acceptable to the Naval Ship Engineering Center, in detail sufficient to permit an accurate appraisal of the likelihood of generation of nauseous irritating or toxic gases or aerosols when the tile is heated to any temperature up to 100 degrees C. (212 degrees F.).

4.5 Examination of preparation for delivery. Random sample packs shall be selected and examined in accordance with MIL-P-116 to determine compliance with section 5 of this document.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements.)

5.1 Packaging.

5.1.1 Levels A and C. Fifteen class 1, 2, or 3 tiles weighing 4.5 pounds each or 25 class 1, 2, or 3 tiles weighing 2.8 pounds each shall be packed flat in a snug-fitting container as specified in 5.2. A reinforcing liner of the same material as the container shall be used. Tiles shall be separated from each other by separate pieces of a good commercial quality Kraft paper 12 inches long by 12 inches wide.

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

5.2.1 Level A. Vibration damping plastic tiles packaged in accordance with 5.1.1 shall be packed in fiberboard boxes conforming to class weather-resistant, V grade, type CP or SP of PPP-B-636. All corner and edge seams and manufacturer's joint shall be water-proofed with tape in accordance with the box specification. Boxes shall be reinforced with pressure sensitive filament reinforced tape in accordance with the box specification.

5.2.2 Level B. Vibration damping plastic tiles packaged in accordance with 5.1.1 shall be packed in fiberboard boxes conforming to class domestic, minimum 350 psi bursting strength of PPP-B-636. Type and style of box shall be at the option of the contractor. Boxes shall be closed in accordance with the box specification.

5.2.3 Level C. Vibration damping plastic tiles packaged in accordance with 5.1.1 shall be packed in containers in a manner which will insure acceptance by common carrier at the lowest rates, and will afford protection against physical or mechanical damage during direct shipment from the supply source to the first receiving activity for immediate use. This level in general shall conform to the Uniform Freight Classification Rules or other carrier regulations as applicable to the mode of transportation. No metal fasteners shall be used to close the top of the containers.

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5.3 **Marking.** In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129. The marking shall include the lot number, the specification number and whether material is class 1, 2 or 3.

6. NOTES

6.1 **Intended use.** This material is intended for use as a vibration damping material for steel plates. Paragraph 1.2 lists the temperature ranges in which each of the three classes of materials has optimum damping efficiency. For toxicity reasons this material should not be used at temperatures over 200°F. The choice of the tile weight per unit area depends on the thickness of the steel plate to be damped and on whether or not an aluminum constraining plate is adhered to the outer face of the tiles. When not constrained with an aluminum plate, the tiles of either weight shall be restrained with studs and a lubricated (not adhered) sheet of glass-reinforced plastic where detached tiles would be hazardous (ballast tanks of submarines) or might damage or interfere with sensitive equipment.

6.1.1 The weight per unit area of the tiles to be used on different thickness of steel is as follows:

Steel plate thickness inch	Tile unit weight lbs. per sq. ft.	Outer layer
1/8 to 5/16, inclusive	2.8	None, or lubricated glass-reinforced plastic sheet held with studs
3/8 to 11/16, inclusive	4.5	None, or lubricated glass-reinforced plastic sheet held with studs
3/4 to 1-3/4, inclusive	2.8	Aluminum plate adhered to tiles, held with studs

6.2 **Ordering data.** Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Class of tile desired (see 1.2).
- (c) Weight in pounds per square foot of tile desired (see 3.3 and 6.1.1).
- (d) Size of tile if other than 12 inches by 12 inches (see 3.4).
- (e) Level of packing required (see 5.2).
- (f) Special marking required (see 5.3).

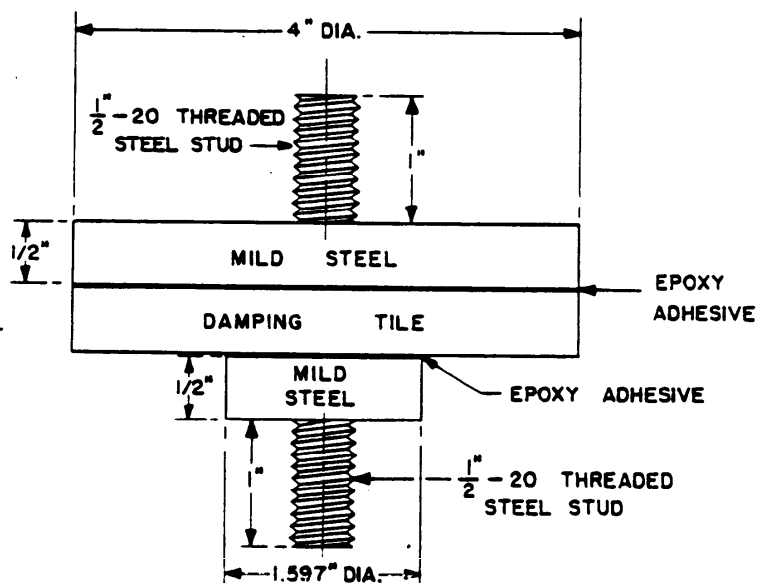
6.3 With respect to products requiring qualification, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in applicable Qualified Products List QPL-23653 whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Ship Engineering Center, Department of the Navy, Hyattsville, Maryland 20782, and information pertaining to qualification of products may be obtained from that activity. Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.4).

6.4 Copies of "Provisions Governing Qualification SD-6" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

6.5 THE MARGINS OF THIS SPECIFICATION ARE MARKED "\$" TO INDICATE WHERE CHANGES (ADDITIONS, MODIFICATIONS, CORRECTIONS, DELETIONS) FROM THE PREVIOUS ISSUE HAVE BEEN MADE. THIS WAS DONE AS A CONVENIENCE ONLY AND THE GOVERNMENT ASSUMES NO LIABILITY WHATSOEVER FOR ANY INACCURACIES IN THESE NOTATIONS. BIDDERS AND CONTRACTORS ARE CAUTIONED TO EVALUATE THE REQUIREMENTS OF THIS DOCUMENT BASED ON THE ENTIRE CONTENT IRRESPECTIVE OF THE MARGINAL NOTATIONS AND RELATIONSHIP TO THE LAST PREVIOUS ISSUE.

Preparing activity
Navy - SH
(Project 9330-N540)

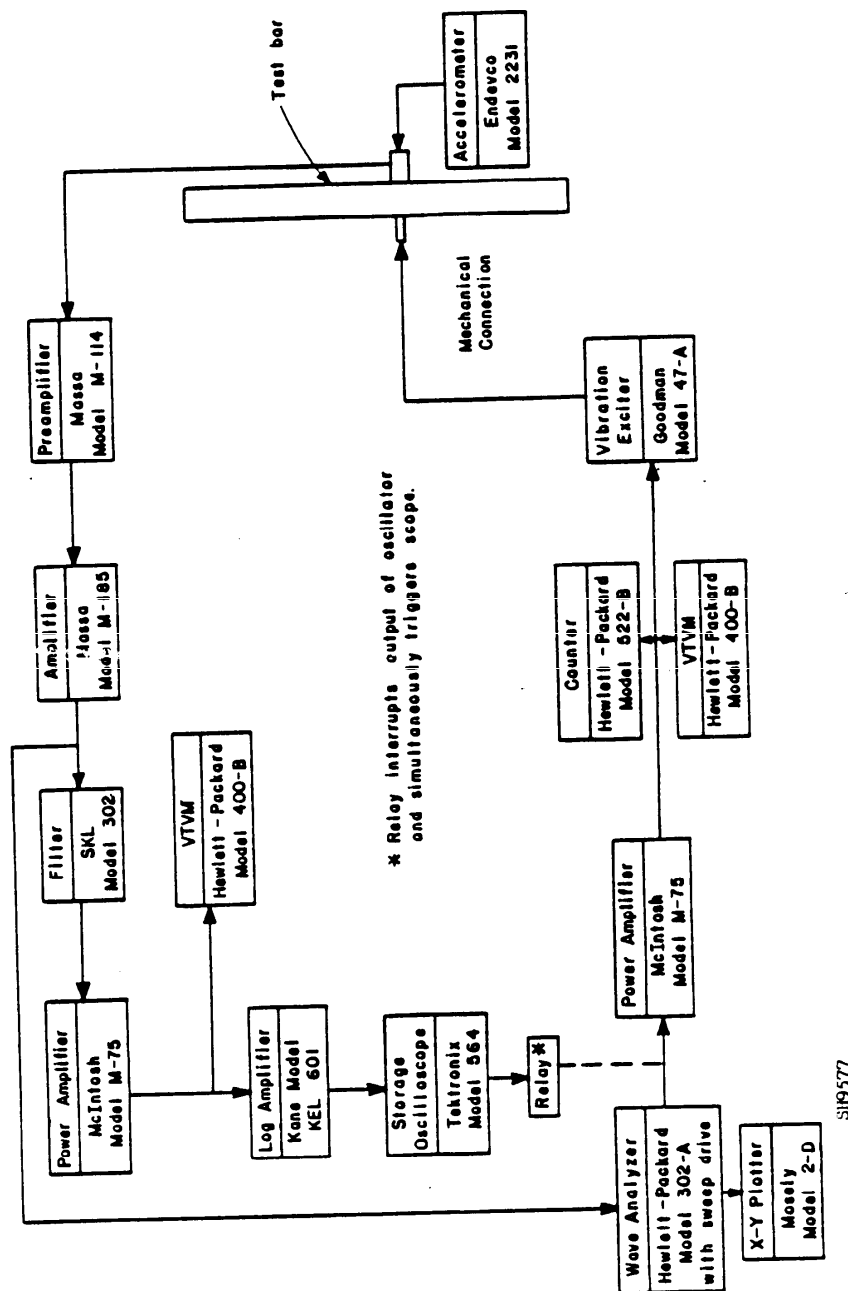
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Figure 1 - Adhesion test specimen.

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Figure 2 - Schematic layout of instrument used to evaluate vibration damping.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

☐

VENDOR

☐

USER

☐

MANUFACTURER

☐

OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

7c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8. DATE OF SUBMISSION (YYMMDD)