

HH-I-1972/GEN
August 12, 1981

FEDERAL SPECIFICATION

INSULATION BOARD, THERMAL, FACED,
POLYURETHANE OR POLYISOCYANURATE

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 the general requirements for faced thermal insulation boards composed of rigid cellular polyurethane or polyisocyanurate foam surfaced with other materials. Additional specific requirements are covered by the applicable specification sheet (see 1.2). The service temperature will vary depending on the facing materials and the application. These specifications do not cover cryogenic application. For intended uses see 6.1.

1.2 Classification. The thermal insulation boards covered by this specification shall be of the classes and styles specified in the applicable detailed specification sheet.

- HH-I-1972/1 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Aluminum Foil on Both Sides of the Foam.
- HH-I-1972/2 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Asphalt/Organic Felt, Asphalt/Asbestos Felt or Asphalt/Glass Fiber Felt on Both Sides of the Foam.
- HH-I-1972/3 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Perlite Insulation Board on One Side of the Foam and Asphalt/Organic Felt or Asphalt/Glass Fiber Felt on the Other Side of the Foam.
- HH-I-1972/4 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Gypsum Board on One Side of the Foam and Aluminum Foil on the Other Side of the Foam.
- HH-I-1972/5 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Perlite Board on Both Sides of the Foam.
- HH-I-1972/6 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Mineral Fiberboard on One Side of the Foam and Glass Mat on the Other Side of the Foam.

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2. APPLICABLE DOCUMENTS

2.1 The following document, 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 Standards:

Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly 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 and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Philadelphia; Washington, DC; Atlanta; Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal activities may obtain copies of Federal specifications, standards, and commercial item descriptions, and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.)

Military Specifications:

MIL-W-3448 - Wallboard; Packaging of.

Military Standards:

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

(Copies of Military specifications, and standards, required by contractors in connection with specific acquisition 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) Standards:

C177 - Steady-State Thermal Transmission Properties by Means of the Guarded Hot Plate.

C203 - Breaking Load and Calculated Flexural Strength of Preformed Block-Type Thermal Insulation.

C236 - Thermal Conductance and Transmittance of Built-up Sections by Means of the Guarded Hot Box.

- C303 - Density of Preformed Block-Type Thermal Insulation.
- C355 - Water Vapor Transmission of Thick Materials.
- C390 - Sampling of Preformed Thermal Insulation.
- C518 - Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter.
- C550 - Trueness and Squareness of Block Thermal Insulation.
- D1621 - Compressive Properties of Rigid Cellular Plastics.
- D2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19102.)

3. REQUIREMENTS

3.1 Materials.

3.1.1 Foam Material. The manufacture of the thermal insulation foam shall be based on the reaction of an isocyanate with a polyol using a fluorocarbon blowing agent to form a rigid closed-cell structured polyurethane foam, or on the reaction of an isocyanate with itself using a catalyst and a blowing agent to form a rigid closed-cell structured polyisocyanurate foam. The insulation foam shall be homogeneous and of uniform density.

3.1.2 Facing materials. Facing materials incorporated in the design of the faced thermal insulation board, shall be as specified in applicable specification sheet.

3.2 First article. When specified (see 6.2), the contractor shall furnish a complete thermal insulation board of the class, style, and size specified for first article inspection and approval (see 4.2.1 and 6.7).

3.3 Physical properties. The thermal insulation boards, when conditioned and tested in accordance with 4.5 through 4.5.7, shall meet the physical properties specified in the applicable specification sheet (see 1.2 and 3.3, of applicable specification sheet).

3.3.1 Thermal resistance (R-value). The actual R-value when tested in accordance with 4.5.6 shall not be less than 90 percent of the specified value in 6.2.

3.4 Dimensions. The thermal insulation boards shall meet the dimension and tolerance requirements of 3.4.1 through 3.4.4 when examined in accordance with 4.4 and 4.4.1.

3.4.1 Thickness. The thickness of the thermal insulation boards shall be specified only when there is a specific thickness requirement and the R-value is not specified (see 6.2, 6.4, and 6.5).

3.4.2 Length. The length of the thermal insulation boards shall be as specified (see 6.2 and 6.6).

3.4.3 Width. The width of the thermal insulation boards shall be as specified (see 6.2 and 6.6).

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3.4.4 Dimensional tolerances. The length and width tolerances shall not exceed $\pm 1/4$ inch, the thickness shall not exceed a tolerance of $\pm 1/8$ inch, and in addition the thickness of any two boards shall not differ more than $1/8$ inch.

3.5 Edges and corners. The thermal insulation boards shall meet the requirements of 3.5.1 through 3.5.3 when examined in accordance with 4.4 and 4.4.1.

3.5.1 Board squareness. The thermal insulation boards shall not be out of square more than $1/16$ inch per foot of width or length.

3.5.2 Straight edges. Unless otherwise specified (see 6.2), the thermal insulation boards shall be furnished with straight edges. Edges shall not deviate more than $1/32$ inch per foot.

3.5.3 Shiplap edges. When specified (see 6.2), the thermal insulation boards shall be furnished with shiplap edges. For insulation boards manufactured with shiplap edges, the depth of the shiplap edges shall be one-half the thickness of the board. For boards less than 2 inches of thickness the width of the lap shall be one-half the thickness of the board. For boards equal to, or greater than, 2 inches of thickness the width of the lap shall be 1 inch. The resulting joint shall be smooth and uniform.

3.6 Flatness. The thermal insulation boards shall not depart from absolute flatness more than $1/16$ inch per foot of length or width when examined in accordance with 4.4 and 4.4.1.

3.7 Marking. The individual thermal insulation boards or bundles shall be marked with the following information: either the manufacturer's trademark or name and the R-value. Marking shall be examined in accordance with 4.4.

3.8 Standard commercial product. The thermal insulation boards of the same classification shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the thermal insulation boards being furnished. A standard commercial product is a product which has been sold, or is currently being offered for sale, on the commercial market through advertisements or manufacturer's catalogs or brochures.

3.9 Workmanship. The thermal insulation boards shall have no defects which will adversely affect their service qualities. The boards shall be of uniform texture, free from the accumulation of unexpanded materials, foreign inclusion, broken edges and corners, slits, and objectionable odors when examined in accordance with 4.4.

3.9.1 Crushing and depressions. The thermal insulation board shall have no crushed or depressed areas on any surface exceeding $1/8$ inch in depth on more than 10 percent of the total surface area when examined in accordance with 4.4.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless Otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 assure supplies and services conform to prescribed requirements.

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

- (a) First article inspection (see 4.2.1).
- (b) Quality conformance inspection (see 4.2.2).
- (c) Preparation for delivery inspection (see 4.6).

4.2.1 First article inspection. First article inspection shall be performed on one insulation board when a first article sample is required (see 6.2 and 6.7). This inspection shall include the examination of 4.4 and the tests of 4.5. The first article may be a first production item or a standard production item from the contractor's current inventory provided the insulation board meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining thermal insulation boards to be furnished under the contract.

4.2.1.1 First article tests. When first article is required (see 6.2), the first article shall be tested as specified in 4.5 through 4.5.7. The first article tests shall be performed by the contractor under the direction and in the presence of Government representatives. Failure to pass any phase of the required tests shall be cause for rejection.

4.2.1.2 Waiver of first article tests. Unless otherwise specified (see 6.2), the first article testing will be waived provided the following conditions are met by the contractor.

- (a) The same type board being offered must have previously been tested as specified in 4.5.3 through 4.5.7 and found to have met those test requirements.
- (b) There shall have been no changes in the manufacturing techniques or materials which would affect the physical properties of the board during or since the testing was performed.
- (c) Records which verify these conditions for waiver must be maintained by the contractor and must be available for review by an authorized contracting officer's representative. When agreed to by the contracting officer, a written statement from the contractor that these conditions for waiver have been met, will be accepted in lieu of first article testing.

4.2.2 Quality conformance inspection. Quality conformance inspection shall include the examination of 4.4 and 4.4.1, and the tests of 4.5 through 4.5.7.

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4.2.2.1 Inspection lot. Unless otherwise specified (see 6.2), the inspection lot and lot size shall be in accordance with ASTM C390.

4.2.2.2 Sampling for visual and dimensional examination. Unless otherwise specified (see 6.2), insulation boards shall be randomly selected from each lot offered for delivery to the Government in accordance with ASTM C390.

4.2.2.3 Sampling for tests. Unless otherwise specified (see 6.2), the thermal insulation boards covered by this specification shall be sampled in accordance with ASTM C390.

4.3 Unit of product. The unit of product for visual examination and tests shall be one insulation board.

4.4 Examination. Each thermal insulation board selected shall be examined for compliance with the requirements specified in section 3 of this specification. Any redesign or modification of the standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection. The examination shall be conducted as specified in table I and as otherwise specified in this document.

TABLE I. Classification of defects

Categories	Defects	Reference Paragraph
Major:		
101	Class or Style not as specified	1.2
102	Dimensions - length, width, thickness not as specified or not within tolerance	3.4
103	Edges and corners - not as specified or within tolerance	3.5
104	Flatness - not within tolerance	3.6
105	Marking - not as specified	3.7
106	Unexpanded material, foreign inclusion, broken edges or corners, slits, objectionable odors, and broken boards	3.9
107	Crushed or depressed areas exceeding 1/8 inch in depth on more than 10 percent of the total surface area of the board	3.9.1
108	More than eight voids per 8 square feet of surface area having dimensions larger in size than 1/8 inch by 1/8 inch by 1/8 inch in depth.	3.9.2
Minor:		
111	Crushed or depressed areas exceeding 1/8 inch in depth on not more than 10 percent of the total surface area of the board	3.9.1

4.4.1 Dimensions, trueness, squareness, and flatness. Sample boards selected in accordance with 4.2.2.2 shall have the length, width, and thickness dimensions measured in accordance with ASTM C303, and shall meet the requirements of 3.4.1 through 3.4.4. The trueness, squareness, and flatness shall be determined in accordance with ASTM C550 except that a straight edge of adequate length shall be used and the boards shall meet the requirements of 3.5 and 3.6.

4.5 Tests. Thermal insulation sample boards, after conditioning in accordance with 4.5.1 shall be tested as specified in 4.5.3 through 4.5.7. In the event of conflict between ASTM test procedures and conditions, and test procedures and conditions as stated in this document, the test procedures and conditions in this specification shall govern. Unless otherwise specified in the test procedure, aging, conditioning, and testing shall be performed on full thickness of faced specimens as supplied under the contract.

4.5.1 Conditioning. Sample boards shall be conditioned at 73 deg F +/- 4 deg F and 50 percent +/- 5 percent relative humidity for a minimum of 40 hours prior to the start of tests of 4.5.3 through 4.5.7. Sample boards to be used for the thermal resistance test, shall be conditioned as specified in 4.5.6.

4.5.2 Thermal resistance test aging. All sample thermal insulation boards shall be aged for either 90 days at 140 deg F +/-2 deg F dry heat or, not less than 6 months at 73 deg F +/-4 deg F and 50 percent +/-5 percent relative humidity prior to conditioning and thermal resistance testing of 4.5.6. Aging shall be performed on test sample boards that are representative of the of boards ordered. Air circulation shall be provided so that all surfaces of the boards are exposed to the surrounding environmental conditions.

4.5.2.1 Waiver for aging requirements. The aging requirements of 4.5.2 will be waived provided the following conditions are met by the contractor:

- (a) The same type board being offered must have been aged as specified in 4.5.2 within the past 2-year period, and there shall have been no changes in the manufacturing technique or the materials which would affect the physical properties of the board during or since the aging was performed.
- (b) Records which verify and support that the aging was performed as specified in 4.5.2 must be maintained by the contractor and must be made available for review by an authorized contracting officer's representative.

4.5.2.1.1 Evidence of compliance for waiver. Unless otherwise specified (see 6.2), a written statement from the contractor that the conditions for waiver of 4.5.2.1 have been met will be acceptable evidence of compliance of the aging requirements.

4.5.3 Compressive strength test. Mineral fiber/urethane/glass mat thermal insulation boards shall be tested as specified in 4.5.3.1. All other thermal insulation boards shall be conditioned and tested in accordance with procedure A of ASTM D1621 to 10 percent thickness deformation or yield, whichever occurs first. The compressive strength shall be determined on a 3 inch by 3 inch by full thickness faced specimen. The compressive strength test shall be performed parallel to the foam rise. The compression strength shall meet the requirements of 3.3, table I of the applicable detail specification sheet.

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4.5.3.1 Compressive strength test for mineral fiber/urethane/glass mat boards. The mineral fiber portion of the composite board shall be conditioned and tested in accordance with procedure A of ASTM C615 to 25 percent thickness deformation a yield whichever occurs first. The crosshead speed shall be 0.05 inches per minute. The compressive strength shall be determined on a 3 inch by 3 inch by a minimum thickness of 1/2 inch. The compressive strength shall meet the requirements of 3.3, table I of the applicable detailed specification sheet. The urethane or isocyanate portion of the composite board shall be conditioned and tested in accordance with procedure A of ASTM A1621 to 10 percent thickness deformation or yield whichever occurs first. The compressive strength shall be determined on a 3-inch by 3-inch by thickness of urethane supplied. The compressive strength test shall be performed parallel to the foam rise. The compressive strength shall meet the requirements of 3.3, table 1 of the applicable detailed specification sheet.

4.5.4 Dimensional stability test. The thermal insulation boards shall be tested for dimensional stability in accordance with ASTM D2126 except that the thickness of the specimen shall be the full thickness as supplied under the contract, and the following environmental schedule shall be followed.

Temperature deg F	Relative Humidity Percent	Exposure Time (Days)
200 deg +/-4 deg F	ambient	7
-40 deg +/-6 deg F	ambient	7
158 deg +/-4 deg F	97 +/-3	7

The boards shall meet the requirements of 3.3, table I of the applicable detailed specification sheet.

4.5.5 Flexural strength test. The thermal insulation boards shall be tested in accordance with ASTM C203, the moving head speed shall be 0.5 inches per minute. Specimen dimensions shall be 3 inches by 12 inches by the full thickness of the specimen supplied under the contract. Conditioning shall be as specified in 4.5.1. Flexural strength test shall be performed on samples with facings intact.

4.5.6 Thermal resistance test. After aging in accordance with 4.5.2, the thermal insulation boards shall be conditioned in accordance with ASTM C518 and tested in accordance with ASTM C177, C236 or C518. The thermal insulation boards shall meet the R-value specified in 6.2 and 3.3.1. The mean testing temperatures shall be 75 deg F +/- 2 deg F with a minimum differential temperature of 40 deg F. The values obtained shall not include the reflective properties of the facing materials.

4.5.7 Water vapor permeance. The water vapor permeance of the thermal insulation boards shall be determined in accordance with ASTM C355, Part 9 (desiccant method).

4.6 Inspection of preparation for delivery. The inspection of the packing of insulation boards shall be in accordance with the requirements of section 4 of MIL-W-3448. The inspection shall consist of the quality conformance inspection with the sampling and Acceptable Quality Level as specified in MIL-W-3448. When specified (see 6.2), a preproduction pack shall be furnished, within the time frame required, for examination in accordance with MIL-W-3448.

5. PACKAGING

5.1 Packing. Insulation boards shall be packed in accordance with MIL-W-3448 with the level of packing as specified (see 6.2).

5.2 Marking.

5.2.1 Civil agencies. Markings shall be in accordance with Fed. Std. 123.

5.2.2 Military agencies. Marking shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The insulation material covered by this specification and the applicable detailed specifications are intended for use as thermal insulation boards in ceilings, roofs, walls, and other applications. The service temperature will vary depending on the facing material and the application, see detailed specification sheets for service temperatures. This specification does not cover cryogenic applications. Consult manufacture for recommendations and physical properties of faced polyurethane or polyisocyanurate insulation boards in cryogenic conditions.

6.1.1 Typical uses. These are some of the typical uses.

HH-I-1972/1 - Roofs, Walls and ceilings.

HH-I-1972/2 - Roofs

HH-I-1972/3 - Roofs

HH-I-1972/4 - Style 1: walls and ceilings, style 2 - roofs.

HH-I-1972/5 - Roofs

HH-I-1972/6 - Roofs

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification and detail sheets.
 - (b) Class (if applicable) and style (if applicable) (see 1.2 of applicable detailed specification sheet).
 - (c) If specific facers are required (see 3.1.1 of applicable detailed specification sheet).
 - (d) If first article is required for inspection and approval (see 3.2, 4.2.1, 4.2.1.1, and 6.7).
 - (e) R-value or specific thickness required (see 3.4.1, 6.4, and 6.5).
Note: Order by R-value or thickness required, but not both.
 - (f) Length and width required (see 3.4.2, 3.4.3, and 6.5).
 - (g) If other than straight edges are required (see 3.5.2 and 3.5.3).
 - (h) When waiver of first article test is not acceptable (see 4.2.1.2).
 - (i) If lot or lot size is different (see 4.2.2.1).
 - (j) Sampling, if different (see 4.2.2.2, and 4.2.2.3).
 - (k) When written statement from the contractor is not acceptable evidence of compliance with aging requirements (see 4.5.2.1.1).
- (1) When
- (l) When a preproduction pack is required and the time frame required for submission (see 4.6).
 - (m) Level of packing specified (see 5.1).

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6.3 Fire Characteristics. Polyurethane and polyisocyanurate are organic materials and therefore are combustible. They should not be exposed to open flames or other ignition sources. The fire performance of the material should be addressed through fire test requirements established by the appropriate governing documents, some of which are:

For roofs:

- (a) Factory Mutual Research - FMR 4450 Approval Standard for Class I Insulated Steel Roof Deck Construction.
- (b) ASTM E84 - Surface Burning Characteristics of Building Materials.
- (c) ASTM E119 - Fire Tests of Building Construction and Materials.
- (d) UL Subject 1256 - Outline of Investigation for Roof Deck Constructions, Revised October, 1979.

For wall and ceilings:

- (a) Factory Mutual Research - FMR 4880 Building Corner Fire Tests.
- (b) ASTM E84 - Surface Burning Characteristics of Building Materials.
- (c) ASTM E119 - Fire Tests of Building Construction and Materials
- (d) UL 1040 - Pull Scale Enclosed Corner Test.
- (e) SPI/PICC 401 - Enclosed Room Fire Test Procedure.

6.4 Thermal resistance - thickness relationship. The thermal resistance (R-value) of the thermal insulation boards will vary with thickness. Therefore when ordering specify the R-value or the thickness required, but not both. R-value vs thickness may not always be a straight line function.

6.5 Availability. The insulation boards are generally available in the sizes given in the applicable detailed specification sheet.

6.6 First article. When a first article is required, it shall be tested and approved under the appropriate provisions of paragraph 7-104.55 of the Defense Acquisition Regulation. The first article should be a first production item consisting of one complete thermal insulation board or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The contracting officer should include specific instructions in all acquisition instruments regarding arrangement for examinations, tests, and approval of the first article.

6.7 Cross reference. Previously HH-I-530A covered both faced and unfaced polyurethane and polyisocyanurate thermal insulation, now the unfaced products are covered by HH-I-530B and the faced products by HH-I-1972.

HH-I-530A	HH-I-530B
Type I, grade 1, class 1	NONE
Type II, grade 1, class 1	NONE
Type III, grade 1, class 1	NONE
Type I, grade 2, class 1	Type I
Type II, grade 2, class 1	Type II
Type III, grade 2, class 1	Type III
NONE	Type IV

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HH-I-530A	HH-I-1972
Type I, grade 1, class 2, Style A	NONE
Type I, grade 1, class 2, Style B	NONE
Type I, grade 1, class 2, Style C	NONE
Type I, grade 1, class 2, Style D	NONE
Type I, grade 1, class 2, Style E	NONE
Type II, grade 1, class 2, Style A	NONE
Type II, grade 1, class 2, Style B	NONE
Type II, grade 1, class 2, Style C	NONE
Type II, grade 1, class 2, Style D	NONE
Type II, grade 1, class 2, Style E	NONE
Type III, grade 1, class 2, Style A	NONE
Type III, grade 1, class 2, Style B	NONE
Type III, grade 1, class 2, Style C	NONE
Type III, grade 1, class 2, Style D	NONE
Type III, grade 1, class 2, Style E	NONE
Type I, grade 2, class 2, Style A	NONE
Type I, grade 2, class 2, Style B	HH-I-1972/1, Class 1 or 2
Type I, grade 2, class 2, Style C	NONE
Type I, grade 2, class 2, Style D	HH-I-1972/2, Class 1
Type I, grade 2, class 2, Style E	NONE
Type II, grade 2, class 2, Style A	NONE
Type II, grade 2, class 2, Style B	NONE
Type II, grade 2, class 2, Style C	NONE
Type II, grade 2, class 2, Style D	HH-I-1972/2, Class 2
Type II, grade 2, class 2, Style E	NONE
Type III, grade 2, class 2, Style A	NONE
Type III, grade 2, class 2, Style B	NONE
Type III, grade 2, class 2, Style C	NONE
Type III, grade 2, class 2, Style D	HH-I-1972/2, Class 3
Type III, grade 2, class 2, Style E	NONE
HH-I-530A	HH-I-1972
NONE	HH-I-1972/2, Class 4
NONE	HH-I-1972/3
NONE	HH-I-1972/4, Style 1
NONE	HH-I-1972/4, Style 2
NONE	HH-I-1972/5
NONE	HH-I-1972/6

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CUSTODIANS:

Army - ME
Navy - YD
Air Force - 94

Review activity

Army - CE:

CIVIL AGENCY COORDINATING ACTIVITIES:

COM - NBS
GSA - FSS, PCD

Preparing activity:

Navy - YD

Project No. 5640-0281

Orders for this publication are to be placed with 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.

HH-I-1972/GEN
AMENDMENT 1
3 October 1985

This amendment, which forms a part of HH-I-1972, dated August 12, 1981, is approved by the Assistant Administrator, Office of Federal Supply and Services, General Services Administration, for the use of all Federal agencies.

PAGE 1

Paragraph 1.2, delete:

"HH-I-1972/2 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate Faced with Asphalt/Organic Felt, Asphalt/Asbestos Felt or Asphalt/Glass Fiber Felt on Both Sides of the Foam."

Replace with the following:

"HH-I-1972/2 - Insulation Board, Thermal, Polyurethane or Polyisocyanurate Faced with Asphalt/Organic Felt, Polymer/Organic Mat, Asphalt/Glass Mat, or Polymer/Glass Mat on Both Sides of the Foam."

Delete:

"HH-I-1972/6 - Insulation Board, Polyurethane or Polyisocyanurate, Faced with Mineral Fiberboard on One Side of the Foam and Glass Mat on the Other Side of the Foam.'

PAGE 2

Paragraph 2.2, add:

"C165 - Recommended Practice for Measuring Compressive Properties of Thermal Insulations."

PAGE 3

Paragraph 2.2, delete:

"C355 - Water Vapor Transmission of Thick Materials."

Add:

"E96 - Test Method for Water Vapor Transmission of Materials."

Paragraph 4.5.7, delete:

"ASTM C355, Part 9 (desiccant method)" and replace with "ASTM E96, Part II (desiccant method)".

Paragraph 4.5.3.1, line 10, delete - "ASTM A1621" and replace with "ASTM D1621".

Paragraph 4.5.3.1, line 3, delete - "ASTM C615" and replace with "ASTM C165".

Paragraph 6.1.1, delete: "HH-I-1972/6 - Roofs."

Paragraph 6.7 - After "Type II, Grade 2, Class 2, Style" replace "HH-I-1972/2, Class 2" with "None".

After "Type III, Grade 2, Class 2, Style D" replace "HH-I-1972/3, Class 3" with "None".

Delete: "None HH-I-1972/2, Class 4"

Delete: "None HH-I-1972/6"

Custodians

CIVIL AGENCY COORDINATING ACTIVITIES:

Navy - YD
Air Force 99

COM-NBS
GSA-FSS, PCD

Review Activity

Preparing Activity

Air Force - 84

Navy - YD

DoD Project 5640-0104

NOTICE
OF VALIDATION

HH-I-1972/GEN(1)
NOTICE 1
7 February 1991

HH-I-1972/GEN(1), dated 3 October 1985, has been reviewed and determined to be valid for use in acquisition.

Custodians:

Army - ME
Navy - YD
Air Force - 99

CIVIL AGENCY COORDINATING ACTIVITIES:

COM - NIST
GSA - FSS/7FXE

Review Activities:

Army - CE
Air Force - 84

Preparing Activity:

Navy - YD