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HH-I-1972/4
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FEDERAL SPECIFICATION

# INSULATION BOARD, THERMAL, POLYURETHANE OR POLYISOCYANURATE FACED WlTH GYPSUM BOARD ON ONE SIDE AND ALUMINUM FOIL OR ASPHALT/ORGANIC FELT ON THE OTHER SIDE OF THE FOAM

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

This specification forms a part of the latest issue of Federal Specification HH-I-1972/GEN.

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for faced thermal insulation boards composed of rigid cellular polyurethane or polyisocyanurate faced to a gypsum board on one side of the foam and aluminum foil or asphalt/organic felt facing on the other side of the foam. This specification does not cover cryogenic applications. For intended use see 6.1 of HH-I-1972/GEN.

1.2 Classification. The thermal insulation boards shall be of the following styles as specified (see 6.2 of HH-I-1972/GEN), and shall meet the physical requirements of 3.3, table I.

Style 1 - Gypsum board on one side of foam and aluminum foil on the other side of the foam.
Style 2 - Gypsum board on one side of foam and asphalt/organic felt on the other side of the foam.

## 2. APPLICABLE DOCUMENTS

2.1 Latest issue of HH-I-1972/GEN and documents referenced therein.

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:

C36 - Gypsum Wallboard.

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

FSC 5640

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3. REQUIREMENTS

3.1 Materials. The thermal insulation boards shall conform to the material requirements of the basic specification HH-I-1972/GEN and 3.1.1.

3.1.1 Facing materials. Unless otherwise specified (see 6.2 of HH-I-1972/GEN), the facing material incorporated in the design of style 1 faced thermal insulation board shall be, at the manufacturer's option, either gypsum board on one side of the foam and a supported or unsupported aluminum foil on the other side of the foam. The facing materials shall meet the requirements of 3.1.1.1, 3.1.1.2, and 3.1.1.3. The facing material incorporated in the design of style 2 faced thermal insulation board shall be type X gypsum board on one side of the foam and an asphalt/organic felt on the other side of the foam. The facing material shall meet the requirements of 3.1.1.1 and 3.1.1.4.

3.1.1.1 Gypsum board. The gypsum board shall conform to the material and physical properties requirements specified in ASTM C36.

3.1.1.2 Unsupported aluminum foil. The metallic composition of unsupported aluminum foil facing material shall not be less than 99 percent aluminum.

3.1.1.3 Supported aluminum foil. The metallic composition of supported aluminum foil facing material shall not be less than 99 percent aluminum. Supported material may be sheet, film, or fibrous mat bonded to the foil. The aluminum foil shall be on the outside of the supporting material.

3.1.1.4 Asphalt/organic felt The asphalt/organic felt shall conform to the material and physical properties requirements specified in table I of ASTM D226, except that the minimum saturation level shall be 95 percent.

3.2 First article (see HH-I-1972/GEN).

3.3 Physical properties. The thermal insulation boards, when conditioned and tested in accordance with 4.5 through 4.5.7 of HH-I-1972/GEN shall meet the physical properties specified in table I.

TABLE I. Physical properties

| Property | | Style 1 | Style 2 | Test Reqmt. Para. |
|---|---|---|---|---|
| Compressive strength (psi) minimum | | 16.0 | 16.0 | 4.5.3 |
| Water vapor transmission (perm-inch) maximum | | 1.0 | N/A | |
| Dimensional stability at -40 deg F/ambient RH, (percent change) maximum | (L) | 2.0 | 2.0 | 4.5.4 |
| | (W) | 2.0 | 2.0 | |
| Dimensional stability at 158 deg F/97 % RH, (percent change) maximum | (L) | 4.0 | 4.0 | 4.5.4 |
| | (W) | 4.0 | 4.0 | |
| Dimensional stability at 200 deg F/ambient RH, (percent change) maximum | (L) | 4.0 | 4.0 | 4.5.4 |
| | (W) | 4.0 | 4.0 | |

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4. QUALITY ASSURANCE PROVISIONS (see HH-I-1972/GEN)

5. PREPARATION FOR DELIVERY (see HH-I-1972/GEN)

6. NOTES

6.1 Intended use. The insulation material covered by this specification is intended for use as thermal insulation boards in roofs, walls, ceilings and other applications where the insulation will not be subjected to temperatures below -40 deg F or above 200 deg F. The service temperature will vary depending on the application. This specification does not cover cryogenic applications. Consult manufacturer for recommendations and physical properties of faced polyurethane or polyisocyanurate insulation boards in cryogenic conditions.

6.2 Availability. Sizes - 4 feet by 8 feet
Thicknesses - 1 inch to 3 inches

CUSTODIANS:

Army - ME
Navy - YD
Air Force - 99

Review activity:

Army - CE

CIVIL AGENCY COORDINATING ACTIVITIES:

COM - NBS
GSA - FSS, PCD

Preparing activity:

Navy - YD

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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.