Guide to Insulation Product Specifications

Introduction
The Guide to Insulation Product Specifications was updated by the National Insulation Association Technical Information Committee in August 2013 after the Committee Days meeting. This guide lists ASTM, federal and military specifications that pertain to the thermal insulation industry. It encompasses both industrial and commercial mechanical insulations as well as building envelope and fire resistance insulations. Related application and finishing accessory materials also are included.

Some government construction agencies (General Services Administration, Department of Housing and Urban Development, Department of Defense, Corps of Engineers, etc.) issue specifications or standards that designated insulation materials. This guide is intended to serve the limited purpose of describing, in a general way, the specifications and standards so designated. It should be kept in mind that the materials listed in this guide are subject to change, as are the specifications and standards themselves. Users are encouraged to review the current version of the applicable specification and/or standard.

This guide organizes each specification by type (ASTM, federal, or military), number and title and describes its scope. NIA Associate Members that manufacture products that claim conformance to the referenced specification are listed below each specification.

Do not rely upon the guide to determine whether a product meets contract specifications or to obtain approvals under purchase orders or contracts. These determinations must be made by careful examination of the contract specifications, the manufacturer’s literature, and the provision of the government specification or standard referred to in the contract documents. For specific product information and specifications compliance, consult the particular manufacturer.

Ordering Information

To order a copy of an ASTM specification, contact the following:
Order Department
ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428
Tel: (610) 832-9585; Fax (610) 832-9555
www.astm.org

Requests for copies of federal and military specifications should be made on company letterhead and sent to the following address:
700 Robbins Ave.
Philadelphia, PA 19111-5094
(Allow 8-10 working days for processing)

Hard copies of this guide can be downloaded from the NIA website or purchased from the online NIA Bookstore at www.insulation.org:
NIA
12100 Sunset Hills Rd.
Suite 330
Reston, VA 20190
Tel: (703) 464-6422; Fax: (703) 464-5896
www.insulation.org

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ASTM Guides, Practices and Test Methods

The following selected ASTM standards describe test methods and practices to determine specific characteristics of building and construction materials and shall not be used to specify materials. These methods may be referenced in ASTM standards or other specification and standards. ASTM standards must be reviewed every five years and, if not revised, either approved again or withdrawn.

Standards pertaining to thermal insulation generally are developed by ASTM Committee C-16 on Thermal Insulation and thus are identified with the prefix C followed by a three- or four-digit number. A two-digit number following the dash (omitted in this document) indicates the year that the standard was adopted or, if revised, the year of last revision.

Users are advised to refer to the current version of the standard in effect at the time of preparation of purchase documents and specifications.

C167 Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations.
C168 Terminology Relating to Thermal Insulating Materials
C203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
C209 Test Methods for Cellulosic Fiber Insulation Board
C240 Test Methods of Testing Cellular Glass Insulation Block
C302 Test Method for Density and Dimensions of Preformed Pipe-Covering-Type Thermal Insulation
C303 Test Method for Density and Dimensions of Preformed Block-Type Thermal Insulation
C335 Test Method for Steady-State Heat Transfer Properties of Horizontal Pipe Insulation
C356 Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat
C390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots
C411 Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
C419 Practice for Making and Curing Test Specimens of Mastic Thermal Insulation Coatings
C423 Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
C447 Practice for Estimating the Maximum Use Temperature of Thermal Insulations
C450 Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Cover for NPS Piping, Vessel Lagging, and Dished Head Segments
C461 Test Methods for Mastics and Coatings Used with Thermal Insulation
C488 Test Method for Conducting Exterior Exposure Tests of Finishes for Thermal Insulation
C585 Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)
C634 Terminology Relating to Environmental Acoustics
C647 Guide to Properties and Tests of Mastics and Coating Finishes for Thermal Insulation
C653 Guide for Determination of the Thermal Resistance of Low-Density Blanket-Type Mineral Fiber Insulation
C680 Practice for Determination of Heat Gain or Loss and the Surface Temperatures of Insulated Pipe and Equipment Systems by the Use of a Computer Program
C692 Test Method for Evaluating the Influence of Thermal Insulations on the External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel
C740 Practice for Evacuated Reflective Insulation in Cryogenic Service
C755 Practice for Selection of Vapor Retarders for Thermal Insulation
C795 Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel
C871 Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions
C921 Practice for Determining the Properties of Jacketing Materials for Thermal Insulation
C929 Practice for Handling, Transporting, Shipping, Storage, Receiving, and Application of Thermal Insulation Materials to Be Used Over Austenitic Stainless Steel
C930 Classification of Potential Health and Safety Concerns Associated with Thermal Insulation Materials and Accessories
C1045 Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements
C1058 Practice for Selecting Temperatures for Evaluating and Reporting Thermal Properties of Thermal Insulation
C1101/C1101M Test Methods for Classifying the Flexibility or Rigidity of Mineral Fiber Blanket and Board Insulation
C1104/C1104M Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation
C1129 Standard Practice for Estimation of Heat Savings by Adding Thermal Insulation to Bare Valves and Flanges
C1199 Standard Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods
C1335 Test Methods for Measuring Non-Fibrous Content of Man-made Rock and Slag Mineral Fiber Insulation
C1338 Test Method for Determining Fungi Resistance of Insulation Materials and Facings
C1363 Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box
C1617 Standard Practice for Quantitative Accelerated Laboratory Evaluation of Extraction Solutions Containing Ions Leached from Thermal Insulation on Aqueous Corrosion of Metals
C1639 Standard Specification for Fabrication of Cellular Glass Pipe and Tubing Insulation
C1728-12 Standard Specification for Flexible Aerogel Insulation
C1729 Standard Specification for Aluminum Jacketing for Insulation
C1767 Standard Specification for Stainless Steel Jacketing for Use over Thermal Insulation
D792 Test Methods for Density and Specific Gravity Cellular Density of Plastics by Displacement
D1621 Test Method for Compressive Properties of Rigid Cellular Plastics
D1622 Test Method for Apparent Density of Rigid Cellular Plastics
D2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
E84 Test method for Surface Burning Characteristics of Building Materials
E90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
E96 Test Method for Water Vapor Transmission of Materials
E119 Test Method for Fire Tests of Building Construction and Materials
E136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
E176 Terminology Related to Fire Standards
E477 Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers
E814 Test Method for Fire Tests of Through-Penetration Fire Stops
E2231 Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess the Surface Burning Characteristics
F683 Practice for Selection and Application of Thermal Insulation for Piping and Machinery

ASTM Specifications

A240/A240M Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels

• ITW Insulation Systems/Pabco-Childers Metals

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A653/A653M
Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  • R.P.R. Products, Inc.

A792/A792M
Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
  • ITW Insulation Systems/Pabco-Childers Metals
  • R.P.R. Products, Inc.

B209
Aluminum and Aluminum-Alloy Sheet and Plate [Metric]
Covers aluminum and aluminum alloy flat sheet, coiled sheet, and plate.
  • ITW Insulation Systems/Pabco-Childers Metals
  • R.P.R. Products, Inc.

C195
Mineral Fiber Thermal Insulating Cement
Covers mineral fiber thermal insulating materials in the form of dry cement which, when mixed with a suitable proportion of water, applied as a plastic mass, and dried in place, affords resistance to heat transmission on surfaces operating at temperatures between 100° and 1,600°F. Replaces federal specification SS-C-160A in part.

C196
Expanded or Exfoliated Vermiculite Thermal Insulating Cement
Covers expanded or exfoliated vermiculite thermal insulating material in the form of dry cement or plaster, intended to be mixed with a suitable proportion of water, applied as a plastic mass, and dried in place, for use as insulation on surfaces operating at temperatures between 100° and 1,800°F. The cement shall not be used where it will be exposed to combustion conditions, such as the hot face lining of a furnace. Replaces federal specification SS-C-160A in part.

C208
Cellulosic Fiber Insulation Board
Covers the principal types, grades, and sizes of insulating board.
  Type I—Sound deadening board
  Type II—Roof insulation board
  Type III—Ceiling tiles and panels
  Type IV—Wall sheathing
  Type V—Backer board
  Type VI—Roof deck

C449/C449M
Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement
Covers mineral fiber insulating and finishing cement, shipped in dry mix form, including hydraulic-setting binder, which when mixed with water and applied in accordance with the manufacturer’s direction, affords a smooth surface as a final finish for heated surfaces between 100° and 1,200°F. Replaces federal specification SS-C-160A in part.
  • Industrial Insulation Group, LLC

C516
Vermiculite Loose Fill Thermal Insulation
Covers expanded or exfoliated vermiculite loose fill insulation for use at temperatures ranging from -459°F to 1,400°F. Replaces federal specification HH-I-585.

Type I—Untreated
Type II—Surface treated

C533
Calcium Silicate Block and Pipe Thermal Insulation
Covers calcium silicate block and pipe thermal insulation for use on surfaces with temperatures between 80°F and 1,700°F. Replaces federal specification HH-I-523.

Type Ia—Up to 1,200°F Pipe and Block
  • Industrial Insulation Group, LLC
  • Rockfibras Do Brazil Ind Com

Type II—Up to 1,700°F
  • Industrial Insulation Group, LLC

C534
Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
Covers preformed flexible elastomeric cellular thermal insulation in sheet and tubular form for use on surfaces operating up to 350°F. Replaces federal specification HH-I-573.

Type I—Tubular
  Grade 1—Regular
    • Aeroflex USA, Inc.
    • Armacell LLC
    • K-Flex USA
    • Nomaco Insulation
  Grade 2—High Temperature
    • Armacell LLC
  Grade 3—Non-halogen
    • Aeroflex USA, Inc.
    • Armacell LLC
    • K-Flex USA

Type II—Sheet
  Grade 1—Regular
    • Aeroflex USA, Inc.
    • Armacell LLC
    • K-Flex USA
    • Nomaco Insulation
  Grade 2—High Temperature
    • Armacell LLC
  Grade 3—Non-halogen
    • Aeroflex USA, Inc.
    • Armacell LLC
    • K-Flex USA

C547
Mineral Fiber Preformed Pipe Insulation
Covers mineral fiber preformed pipe insulation for use on surfaces up to 1,200°F.

Type I—Up to 850°F (molded)
  • CertainTeed
  • Industrial Insulation Group, LLC
  • Johns Manville Corp.
  • Knauf Insulation
  • Manson Insulation Corp.
  • Owens Corning
  • Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.

Type II—Up to 1,200°F (molded)
• Industrial Insulation Group, LLC-MPT Division
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.

Type III—Up to 1,200°F (V-groove)
• Industrial Insulation Group, LLC-MPT Division
• Rockfibras Do Brazil Ind Com

Type IV—Up to 1,000°F
• Industrial Insulation Group, LLC-MPT Division
• Knauf Insulation
• Rockfibras Do Brazil Ind Com
• Roxul, Inc.

Type V—Up to 1,400°F
• Rockfibras Do Brazil Ind Com
• Roxul, Inc.

C549
Perlite Loose Fill Insulation
Covers expanded perlite loose fill insulation for use up to 1,400°F. Replaces federal specification HH-I-574.

Type I—Untreated
• Industrial Insulation Group, LLC

Type II—Surface treated to produce water repellency
Type III—Surface treated to limit dust generated during application
Type IV—Surface treated to produce water repellency and limit dust generated during application.

C552
Cellular Glass Thermal Insulation
Covers cellular glass insulation for use at temperatures up to 800°F. Replaces federal specification HH-I-551.

Type I—Flat Block
• Pittsburgh Corning Corp.

Type II—Pipe and tubing insulation
• Pittsburgh Corning Corp.

Type III—Special Shapes
• Pittsburgh Corning Corp.

Type IV—Board
• Pittsburgh Corning Corp.

C553
Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
Covers mineral fiber blanket intended for use at temperatures up to 1,200°F

Type I—Maximum use 450°F
• CertainTeed Corp.
• Industrial Insulation Group, LLC
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.

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Type II—Maximum use 450°F
- CertainTeed Corp.
- Industrial Insulation Group, LLC
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation Corp.
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type III—Maximum use 450°F
- CertainTeed Corp.
- Industrial Insulation Group, LLC
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation Corp.
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type IV—Maximum use 850°F
- Industrial Insulation Group, LLC
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation Corp.
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type V—Maximum use 1,000°F
- CertainTeed Corp.
- Industrial Insulation Group, LLC
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type VI—Maximum use 1,000°F
- CertainTeed Corp.
- Industrial Insulation Group, LLC
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type VII—Maximum use 1,200°F
- Industrial Insulation Group, LLC
- Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.

C578
Rigid, Cellular Polystyrene Thermal Insulation
Covers cellular polystyrene for use at temperatures up to 165°F. Replace federal specification HH-I-524. Specification covers various types of rigid cellular polystyrenes that are commercially available. See specification for description of each type.

Type XIII is extruded polystyrene (XPS) billet available at various thicknesses of 7-10 inches

• ITW Insulation Systems

Types XII, X, IV, VI, VII, and V are extruded polystyrene (XPS) boards available at various thicknesses up to 4 inches

• Knauf Insulation
• Owens Corning

C591
Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation
Covers unfaced, preformed rigid cellular polyisocyanurate plastic material intended for use at temperatures up to 300°F. Replaces federal specification HH-I-530.

Type I—Minimum compressive resistance of 16 psi.

• Dyplast Products, LLC
• ITW Insulation Systems

Type II—Minimum compressive resistance of 35 psi.

• Dyplast Products, LLC
• ITW Insulation Systems

Type III—Minimum compressive resistance of 45 psi.

• Dyplast Products, LLC
• ITW Insulation Systems

Type IV—Minimum compressive resistance of 21 psi

• Dyplast Products, LLC
• ITW Insulation Systems

Type V—Minimum compressive resistance of 80 psi.

• Dyplast Products, LLC
• ITW Insulation Systems

Type VI—Minimum compressive resistance of 125 psi.

• Dyplast Products, LLC
• ITW Insulation Systems

C592
Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type)
Covers metal-mesh covered mineral fiber blanket and blanket-type insulation for use at temperatures up to 1,200°F.

Type I—Maximum use 850°F

• Industrial Insulation Group, LLC
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.

Type II—Maximum use 1,200°F

• Industrial Insulation Group, LLC

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• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.

Type III—Maximum use 1200°F
• Industrial Insulation Group, LLC
• Rockfibras Do Brazil Ind Com
• Roxul, Inc.

C610
Molded expanded Perlite Block and Pipe Thermal Insulation
Covers expanded perlite block and pipe insulation for use at temperatures up to 1,200°F.
• Industrial Insulation Group, LLC
• ITW Insulation Systems

C612
Mineral Fiber Block and Board Thermal Insulation
Covers mineral fiber board insulation for use at temperatures up to 1,800°F.
Type IA, IB—Maximum use 450°F
• CertainTeed Corp.
• Industrial Insulation Group, LLC
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.
Type II—Maximum use 850°F
• CertainTeed Corp.
• Industrial Insulation Group, LLC
• Johns Manville Corp.
• Knauf Insulation
• Owens Corning
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.
Type III—Maximum use 1,000°F
• Knauf Insulation
• Industrial Insulation Group, LLC
• Owens Corning
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.
Type IVa, IVb—Maximum use 1,200°F
• Industrial Insulation Group, LLC
• Rockfibras Do Brazil Ind Com
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.
Type V—Maximum use 1,800°F
  • Rock Wool Manufacturing Co.
  • Thermafiber, Inc.

**C656 Structural Insulating Board, Calcium Silicate**
Covers structural insulating board for use in general insulation, fire-resistive, and marine-bulkhead applications at temperatures up to 1,700°F.
  Type I—For use up to 1,400°F
  Type II—For use up to 1,700°F
  Grade 1—Typical density 36 lb./ft³
  Grade 2—Typical density 46 lb./ft³
  Grade 3—Typical density 60 lb./ft³
  Grade 4—Typical density 14 lb./ft³
  • Industrial Insulation Group, LLC
  Grade 5—Typical density 18 lb./ft³
  • Industrial Insulation Group, LLC
  Grade 6—Typical density 28 lb./ft³
  • Industrial Insulation Group, LLC
  Grade 7—Typical density 40 lb./ft³
  • Industrial Insulation Group, LLC
  Grade 8—Typical density 60 lb./ft³
  • Industrial Insulation Group, LLC

**C665 Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing**
Covers mineral fiber blanket insulation used to thermally or acoustically insulate ceilings, floors, and walls in light frame construction and manufactured housing. Replaces federal specification HH-I-521.
  Type I—Blankets without membrane coverings
  • CertainTeed Corp.
  • Industrial Insulation Group, LLC
  • Johns Manville Corp.
  • Knauf Insulation
  • Manson Insulation Corp.
  • Owens Corning
  • Rockfibras Do Brazil Ind Com
  • Rock Wool Manufacturing Co.
  • Roxul, Inc.
  • Thermafiber, Inc.
  Type II—Blankets with a nonreflective vapor-retarder membrane covering one principal face
  • CertainTeed Corp.
  • Johns Manville Corp.
  • Knauf Insulation
  • Manson Insulation Corp.
  • Owens Corning
  • Rockfibras Do Brazil Ind Com
  • Rock Wool Manufacturing Co.
  • Thermafiber, Inc.
  Type III—Blankets with a reflective vapor-retarder covering on principal face
  • CertainTeed Corp.
  • Johns Manville Corp.
  • Knauf Insulation
  • Manson Insulation Corp.
  • Owens Corning
  • Rockfibras Do Brazil Ind Com

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Prefabricated Reflective Insulation Systems for Equipment and Pipe Operating at Temperatures Above Ambient Air
Covers metal prefabricated, reflective insulation systems for equipment and piping operating at temperatures above ambient in air.

Mineral Wool Roof Insulation Board
Covers mineral wool insulation board used principally above structural roof decks as a base for built-up roofing. Replaces federal specification HH-I-526.
- Johns Manville Corp.
- Rockfibras Do Brazil Ind Com
- Roxul, Inc.

Perlite Thermal Insulation Board
Covers perlite thermal insulation board used principally above structural roof decks and as a base for builtup, modified, and elastomeric membrane roofing. Replaces federal specification HH-I-529.
- ITW Insulation Systems
- Johns Manville Corp.

Mineral Fiber Loose-Fill Thermal Insulation
Covers nodulated mineral fiber thermal insulation for use in attics or enclosed spaces in housing and other framed buildings. Replaces federal specification HH-I-1030.
Type I—Pneumatic application
- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Thermafiber, Inc.
Type II—Poured application
- Rockfibras Do Brazil Ind Com
- Thermafiber, Inc.

Glass Fiber Blanket Insulation (Aircraft Type)
Covers glass fiber blanket thermal and acoustical insulation for use up to 700°F in aircraft applications. Replaces MIL-B-59248.
Type I—For use to 450°F
- Johns Manville Corp.
Type II—For use to 700°F
- Johns Manville Corp.

High-Temperature Fiber Blanket Thermal Insulation
Covers high-temperature fiber blanket thermal insulation for use at temperatures from 1,350°F up to 3,000°F.
Type I—Maximum temperature use 1,350°F
Type II—Maximum temperature use 1,600°F
- 3M Fire Protection Products
• Thermafiber, Inc.
• Unifrax Corp.

Type III—Maximum temperature use 2,400°F
• 3M Fire Protection Products
• Unifrax Corp.

Type IV—Maximum temperature use 2,600°F
• 3M Fire Protection Products
• Unifrax Corp.

Type V—Maximum temperature use 3,000°F
• 3M Fire Protection Products
• Unifrax Corp.

C916
Adhesives for Duct Thermal Insulation
Establishes minimum material requirements for adhesives to bond thermal insulation duct liner on the interior surfaces of sheet metal air conditioning ducts.

Type I—Nonflammable in the liquid (wet) state and will pass edge-burning test
• Foster Products (HB Fuller Construction Products)
• ITW Insulation Systems/Pabco-Childers Metals
• Mon-Eco Industries, Inc.

Type II—Nonflammable in the liquid (wet) state and will not pass edge-burning test
• Foster Products (HB Fuller Construction Products)
• ITW Insulation Systems/Pabco-Childers Metals
• Mon-Eco Industries, Inc.

Type III—Flammable in the liquid (wet) state and will pass edge-burning test
• Mon-Eco Industries, Inc.

Type IV—Flammable in the liquid (wet) state and will not pass edge-burning test
• Foster Products (HB Fuller Construction Products)
• ITW Insulation Systems/Pabco-Childers Metals
• Mon-Eco Industries, Inc.

C991
Flexible Glass Fiber Insulation for Pre-Engineered Metal Buildings
Covers flexible glass fiber insulation for use as interior surface of walls and roofs of manufactured metal buildings.

Type I—Without vapor-retarder facing
• CertainTeed Corp.
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning
• Rockfibras Do Brazil Ind Com

Type II—With vapor-retarder facing
• Johns Manville Corp.
• Rockfibras Do Brazil Ind Com

C1014
Spray-Applied Mineral Fiber Thermal and Sound Absorbing Insulation
Covers spray-applied mineral fiber thermal or acoustical insulation.
• Thermafiber, Inc.

C1029
Spray-Applied Rigid Cellular Polyurethane Thermal Insulation
Covers spray-applied rigid cellular polyurethane for use as thermal insulation at temperatures between -22°F and 225°F.
Type I—Minimum compressive resistance 15 psi
Type II—Minimum compressive resistance 25 psi
Type III—Minimum compressive resistance 40 psi
Type IV—Minimum compressive resistance 60 psi

C1071
Thermal and Acoustical Insulation (Glass Fiber, Duct Lining Material)
Covers fibrous glass insulation used as a thermal and acoustical liner for interior surfaces of ducts, plenums, and other air handling equipment. Replaces federal specification HH-I-545.

Type I—Flat, in rolls
- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation Corp.
- Owens Corning

Type II—Flat, in sheet form
- CertainTeed Corp.
- Johns Manville
- Knauf Insulation
- Manson Insulation Corp.
- Owens Corning

C1086
Glass Fiber Felt Thermal Insulation
Covers glass fiber unsupported needled felt binder-free insulation used for thermal insulation of machinery and equipment at temperatures up to 1,200°F.

- Alpha Associates, Inc.
- Lewco Specialty Products, Inc.
- Rockfibras Do Brazil Ind Com

C1126
Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation
Covers faced or unfaced rigid cellular phenolic thermal insulation, in either board or tubular form, for use at temperatures between -40°F and 257°F.

Type I—For use as roof insulation board
Type II—For use as sheathing or rigid panel for non-load bearing applications
- Dyplast Products, LLC
- ITW Insulation Systems

Type III—For use as pipe insulation
- Dyplast Products, LLC
- ITW Insulation Systems

C1136
Flexible, Low Permeance Vapor Retarders for Thermal Insulation
Covers vapor retarders for thermal insulation, specifically flexible materials with permeance of 0.10 perm or lower and surface burning characteristics of 25 flame spread/50 smoke or lower, for use between temperatures of -20°F and 150°F. Replaces federal specification HH-B-100.

- Alpha Associates, Inc.
- CertainTeed Corp.
- HiCube Coating, LLC
- ITW Insulation Systems
- Johns Manville Corp.
- Lamtec Corp.
• Venture Tape Corp.

**C1139**  
**Fibrous Glass Thermal Insulation and Sound Absorbing Blanket and Board for Military Applications**  
Covers unfaced flexible fibrous glass blanket and faced board used as thermal and sound absorbing insulation at temperatures up to 450°F for military applications as a replacement for MIL-I-22023D.  
Type I—Unfaced thermal blanket  
• CertainTeed Corp.  
• Johns Manville Corp.  
• Knauf Insulation  
• Manson Insulation Corp.  
• Owens Corning  
Type II—Unfaced sound absorbing blanket  
• CertainTeed Corp.  
• Johns Manville Corp.  
• Knauf Insulation  
• Manson Insulation Corp.  
• Owens Corning  
Type III—Faced, thermal and sound absorbing board  
• CertainTeed Corp.  
• Johns Manville Corp.  
• Knauf Insulation

**C1289**  
**Faced Rigid Cellular Polyisocyanurate Thermal Insulation**  
Covers various types (I through VI) faced boards. Replaces ASTM C1013-94. See specifications for a more detailed description.

**C1290**  
**Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts**  
• CertainTeed Corp.  
• Johns Manville Corp.  
• Knauf Insulation  
• Manson Insulation Corp.  
• Owens Corning

**C1393**  
**Specification for Perpendicularly Oriented Mineral Fiber Roll and Sheet Thermal Insulation for Pipes and Tanks**  
• CertainTeed Corp.  
• Knauf Insulation  
• Industrial Insulation Group, LLC-MPT Division  
• Owens Corning  
• Rockfibras Do Brazil Ind Com  
• Rock Wool Manufacturing Co.

**C1410**  
**Specification for Melamine Thermal and Sound-Absorbing Insulation**

**C1427**  
**Specification for Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular form**  
• Aeroflex USA, Inc.  
• Armacell, LLC  
• Nomaco Insulation  

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C1482
  • Evonik Foams, Inc.

C1534
 Specification for Flexible Polymeric Foam Sheet Insulation Used as a Thermal and Sound Absorbing Liner for Duct
  Type I
    • Aeroflex USA, Inc.
    • Armacell, LLC
    • K-Flex USA
    • Nomaco Insulation
  Type II
    • Evonik Foams, Inc.

C1594
Standard Specification for Polyimide Rigid Cellular Thermal Insulation
  • Evonik Foams, Inc.

C1695
Standard Specification for Fabrication of Flexible Removable and Reusable Blanket Insulation for Hot Service
  • Auburn Mfg., Inc.

C1729
Standard Specification for Aluminum Jacketing for Insulation
  • ITW Insulation Systems/Pabco-Childers Metals
  • RPR Products, Inc.

C1767
Standard Specification for Stainless Steel Jacketing for Use over Thermal Insulation
  • ITW Insulation Systems/Pabco-Childers Metals

D1784
Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
Covers rigid PVC and CPVC compounds intended for general purpose use in extruded or molded form, including piping applications involving special chemical and acid resistance or heat resistance, composed of poly (vinyl chloride), chlorinated poly (vinyl chloride), or vinyl chloride copolymers containing at least 80 percent vinyl chloride, and the necessary compounding requirements.
  • GLT Products and Speedline Corp.
  • Johns Manville Corp.
  • Proto Corp.

Federal Specifications
Federal Law (Public Law 132) has mandated that Federal and Military Specifications shall be replaced with consensus or performance standards available in the public domain. To comply with this federal law, some of the following Federal or Military Specifications either have been made obsolete or soon will be obsolete. These obsolete specifications are included for reference only, and the new appropriate specifications are indicated.

HH-B-100B Canceled. Replaced by ASTM C 1136.
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Barrier Material, Vapor (for Pipe, Duct and Equipment Thermal Insulation)
Vapor barriers (jackets and facing) applied over thermal insulation for pipes, ducts, and equipment.
   Type I—Low vapor transmission, high puncture resistance (for use on insulation for piping, ducts, and equipment)
   Type II—Medium vapor transmission, moderate puncture resistance (for use on insulation for ducts and equipment)

HH-I-515E Canceled. Replaced by ASTM C 739.
Insulation, Thermal (Loose Fill For Pneumatic or Poured Application): Cellulosic or Wood Fiber
Covers chemically treated, recycled cellulosic fiber (wood base) loose-fill thermal insulation for use in attics or enclosed spaces in housing, and other framed buildings at ambient temperatures ranging from –50° to 180°F, by pneumatic or poured application. Last revised June 1992.
   Type I—Pneumatic application
   Type II—Poured application

HH-I-521F
Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures)
Canceled. Replaced by ASTM C 665.

HH-I-523C
Insulation, Block and Pipe Covering, Thermal (Calcium Silicate for Temperatures to 1,200°F)
Canceled. Replaced by ASTM C 533.

HH-I-524C
Insulation Board, Thermal (Polystyrene)
Canceled. Replaced by ASTM C 578.

HH-I-525A
Insulation Board, Thermal (Cork)
Cork insulation board for thermal insulation.
Canceled. Replaced by ASTM C 640.

HH-I-526C
Insulation Board, Thermal (Mineral Fiber)
Canceled. Replaced by ASTM C 726.

HH-I-592B
Insulation Board, Thermal (Mineral Aggregate)
Canceled. Replaced by ASTM C 728.

HH-I-530B
Insulation Board, Thermal, Unfaced (Polyurethane or Polyisocyanurate)
Canceled. Replaced by ASTM C 591.

HH-I-545B
Insulation, Thermal and Acoustical (Mineral Fiber, Duct Lining Material)
Canceled. Replaced by ASTM C 1071.

H-I-551E
Insulation, Block and Board, Thermal (Cellular Glass)
Canceled. Replaced by ASTM C 552.

HH-I-558C
Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type)

**HH-I-573B**  
Insulation, Thermal (Flexible Unicellular Sheet and Pipe Covering)  
Canceled. Replaced by ASTM C 534.

**HH-I-574B**  
Insulation, Thermal (Perlite)  
Canceled. Replaced by ASTM C 549.

**HH-I-585C**  
Insulation, Thermal (Vermiculite)  
Canceled. Replaced by ASTM C 516.

**HH-I-1030B**  
Insulation, Thermal (Mineral Fiber, for Pneumatic or Poured Application) Canceled. Replaced by ASTM C 764.

**HH-I-1252B  Cancelled—No Replacement**  
Insulation, Thermal, Reflective (Aluminum Foil)  
Aluminum foil insulation.
- Form 1-Materials providing a minimum 19 millimeters (3/4-inch) reflective air space having an effective emittance (E) of 0.05 maximum
- Form 2-Materials providing a minimum 10 millimeters (3/8-inch) reflective air space having an effective E of 0.05 maximum

**HH-P-31F**  
Packing and Lagging Material, Fibrous Glass Metallic and Plain Cloth and Tape  
Covers fibrous glass metallic cloth and tape packing for boiler casing access openings or insulation lagging pads and heavyweight, rubber-treated fibrous glass cloth and tape for pipe flange joint gaskets.
  - Alpha Associates, Inc.
  - Auburn Mfg., Inc.
  - Lewco Specialty Products, Inc.

**L-P-535E Inactive**  
Plastic Sheet (Sheeting); Plastic Strip; Poly (Vinyl Chloride) and Poly (Vinyl Chloride-Vinyl Acetate), Rigid  
Covers rigid unsupported poly (vinyl chloride) and poly (vinyl chloride-vinyl acetate) sheets (sheeting) and strip.
  - Proto Corp.

**L-T-80B**  
Tape, Pressure-Sensitive Adhesive (Aluminum-Backed)  
Covers aluminum foil-backed pressure-sensitive adhesive tape designed for use in sealing applications where the properties of good weather resistance, reflectivity, and moisture vapor transmission resistance are required.
  - Ideal Tape Co.
  - Venture Tape Corp.

**LLL-I-535B**  
Insulation Board, Thermal (Cellulosic Fiber)  
Canceled. Replaced by ASTM C 208, and others.

**SS-C-160A**  
Cements, Insulation Thermal

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Heat-resisting cements. Canceled. Replaced by ASTM C 195 (Type III Grade U), ASTM C 196 (Type IV), and ASTM C 449/C 449M (Type III Grade F).
   - Type III—Mineral Wool
   - Type IV—Vermiculite (100°–1,800°F)
   - Type V—Diatomaceous Silica (100°–1,900°F)

SS-S-111C
Sound Controlling Materials (Trowel and Spray Applications).
Covers acoustical materials for trowel or spray applications.
   - Type I—Cementitious materials
   - Type II—Fibrous materials
   - Type III—Synthetic Polymeric materials
     - ITW Insulation Systems/Pabco-Childers Metals
     - Mon-Eco Industries, Inc.

Military Specifications
(Please see note under Federal Specifications regarding Public Law 132)

MIL-A-23054A
Acoustic Absorptive Board, Fibrous Glass Perforated Fibrous Glass Cloth Faced
Covers fibrous glass cloth facing.

MIL-A-24179A
Adhesive, Flexible Unicellular-Plastic Thermal Insulation
Covers high initial strength, heat- and water-resistant, contact-type adhesives for bonding flexible unicellular-plastic thermal insulation to itself and to metal surfaces.
   - Aeroflex USA, Inc.
   - Armacell LLC
   - Foster Products (HB Fuller Construction Products)
   - Mon-Eco Industries, Inc.
   - K-Flex USA

MIL-A-24699
Acoustical Transmission Loss Barrier Material
Covers two types of acoustical transmission loss barriers. Canceled without replacement.
   - Type I—Barium sulfate-loaded vinyl with fibrous glass facing
   - Type II—Wire-reinforced lead

MIL-A-3316C
Adhesive, Fire-Resistant, Thermal Insulation
Covers fire-resistant adhesives for securing cloth and tape to certain thermal insulations and for securing thermal insulations to metal surfaces.
   - Class 1
     - Grade A—Pigmented white
       - Foster Products (HB Fuller Construction Products)
       - ITW Insulation Systems/Pabco-Childers Metals
       - Mon-Eco Industries, Inc.
       - Vimasco Corp.
     - Grade B—Pigmented red
       - Foster Products (HB Fuller Construction Products)
       - ITW Insulation Systems/Pabco-Childers Metals
       - Mon-Eco Industries, Inc.
       - Vimasco Corp.

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Class 2
Grade A—Pigment white
- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

Class 3
Grade A—Pigmented white
- Foster Products (HB Fuller Construction Products)
- Mon-Eco Industries, Inc.

MIL-B-5924B
Batting, Insulation, Glass Fibers
Canceled. Replaced by ASTM C 800.

MIL-C-2861E
Cement, Insulation, High Temperature
Covers high temperature insulation cement for thermal control of irregular surfaces and for piping operating at temperatures between 100° and 1,800°F. Future replacement is ASTM C195.
- Industrial Insulation Group, LLC
- Rock Wool Manufacturing Co.

MIL-C-19565C
Coating Compounds, Thermal Insulation, Fire- and Water-Resistant, Vapor-Barrier
Covers an interior vapor-barrier coating for insulated refrigerant and chilled water lines.
- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.
- Vimasco Corp.

MIL-C-20079H
Cloth, Glass; Tape, Textile Glass; and Thread, Glass and Wire-Reinforced Glass
Covers fibrous glass cloth, tape, and sewing thread for use as thermal insulation compounds.
Type I—Cloth
- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Lewco Specialty Products, Inc.
Type II—Tape
- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Lewco Specialty Products, Inc.
Type III—Sewing thread
- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Lewco Specialty Products, Inc.

MIL-C-24576A
Cloth, Silica Glass; Cloth, Coated, Glass, Silicone-Rubber Coated
Covers two types of woven cloth intended for use in protecting equipment and personnel from spatter from metal welding and cutting operations.
Type I—Silica glass
- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Lewco Specialty Products, Inc.
Type II—Fibrous glass coated with silicone rubber
- Alpha Associates, Inc.

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• Auburn Mfg., Inc.
• Lewco Specialty Products, Inc.

MIL-I-742F
Insulation Board, Thermal, Fibrous Glass
Covers fire resistive fibrous glass thermal insulation board.
  Type I—Fibrous glass cloth-faced board
  Type II—Unfaced board
  • CertainTeed Corp.
  • Johns Manville Corp.
  • Knauf Insulation
  • Manson Insulation Corp.

MIL-I-2781F
Insulation, Pipe, Thermal
Covers preformed thermal insulation for use on pipes at surface temperatures up to 1,200°F.
  • Industrial Insulation Group, LLC

MIL-I-2818 C
Insulation Blanket, Thermal, Fibrous Mineral
Covers wire-reinforced fibrous mineral wool insulation blanket.
Cancelled.

MIL-I-2819F
Insulation Block, Thermal
Covers thermal insulation block for use on machinery and equipment at surface temperatures up to 1,500°F.
  Class 2—Temperatures up to 1,200°F
  • Industrial Insulation Group, LLC
  Class 3—Temperatures up to 1,500°F
  • Industrial Insulation Group, LLC

MIL-I-13042A
Insulation Sleeving, Thermal, Tubular Flexible
Flexible braided or woven tubular thermal insulation sleeving intended primarily for covering heater ducts, exhaust pipes, and other tubes in vehicles. Canceled without replacement.
  Composition I—Asbestos mixture
  Composition II—Glass fiber
  • Lewco Specialty Products, Inc.

MIL-I-15475C
Insulation Felt, Thermal, Fibrous Glass, Semi-rigid
Covers fibrous glass felt sheets for thermal insulation. Canceled without replacement.
  • Johns Manville, Corp.
  • Knauf Insulation

MIL-I-16411F
Insulation Felt, Thermal, Glass Fiber
Covers glass fiber insulation felt for thermal insulation of machinery and equipment.
  • Alpha Associates, Inc.
  • Auburn Mfg., Inc.
  • Lewco Specialty Products, Inc.

MIL-I-16562A
Insulation, Synthetic, Rubber-Like, Chemically Expanded, Cellular (Sheet Form)
Covers chemically expanded synthetic rubber-like material (sheet form) for insulation purposes.

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• Aeroflex USA, Inc.
• Armacell LLC
• K-Flex USA

MIL-I-22023D
Insulation Felt, Thermal and Sound Absorbing Felt, Fibrous Glass, Flexible
Covers lightweight, faced and unfaced flexible fibrous glass felt for thermal and sound absorbing insulation for use up to 400°F. Replacement is ASTM C 1139.

Type I—Unfaced, thermal felt
• CertainTeed Corp.
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning

Type II—Unfaced, sound absorbing felt
• CertainTeed Corp.
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning

Type III—Faced, thermal and sound absorbing felt
• CertainTeed Corp.
• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.

MIL-I-22344D
Insulation, Pipe, Thermal, Fibrous Glass
Covers fibrous glass pipe insulation for use as thermal control on pipes, valves, and fittings for temperatures up to 370°F.

• Johns Manville Corp.
• Knauf Insulation
• Manson Insulation Corp.
• Owens Corning

MIL-I-23128B
Insulation Blanket, Thermal, Refractory Fiber, Flexible
Covers asbestos-free thermal insulation, cement, and adhesives, and asbestos containing thermal insulation tape, all with special corrosion, chloride, and fluoride requirements.
Types I through XVII (see specifications)

MIL-DTL-24244D (SH)
Insulation Material, with Special Corrosion, Chloride, and Fluoride Requirements
Covers asbestos-free thermal insulation, cement, and adhesives, and asbestos containing thermal insulation tape, all with special corrosion, chloride, and fluoride requirements.
Types I through XVIII (see specifications)

• Alpha Associates, Inc.
• Auburn Mfg., Inc.
• Foster Products (HB Fuller Construction Products)
• Industrial Insulation Group, LLC-MPT Division
• Johns Manville Corp.
• Knauf Insulation
• Lewco Specialty Products, Inc.
• Manson Insulation Corp.

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• Owens Corning
• Pittsburgh Corning Corporation
• Rock Wool Manufacturing Co.
• Roxul, Inc.
• Thermafiber, Inc.
• Unifrax Corp.
• Vimasco Corp.

MIL-P-15280J Inactive
Plastic Material, Unicellular (Sheets and Tubes)
Covers chemically expanded unicellular elastomeric plastic foam material for thermal insulation.
Form T—Tubular
• Aeroflex USA, Inc.
• Armacell LLC
• K-Flex USA
Form S—Sheet
• Aeroflex USA, Inc.
• Armacell LLC
• K-Flex USA

MIL-S-24149C
Studs, Welding, and Arc Shields (Ferrules)
Covers studs for welding with stud welding equipment and arc shields (ferrules) for shielding studs where applicable.
• Midwest Fasteners, Inc.

MIL-T-23397B
Tapes, Pressure Sensitive Adhesive for Masking During Paint Stripping Operations
Covers tapes for masking during paint stripping operations
Type I—Three-hour protection
• Ideal Tape Co.
• Venture Tape Corp.
Type II—72-hour protection
• Venture Tape Corp.

MIL-W-23680E
Stud Welding Systems, DC, Integral Power Source and Control Unit, Electric Arc and Capacitor Discharge
Covers portable electric arc and capacitor discharge stud welding systems consisting of an integral direct current (DC) power source, timer controls, stud gun(s), and cables.
• Midwest Fasteners, Inc.

MIL-W-80110C
Stud Welding Units, Independent DC Power Source with Separate Control Unit, Electric Arc
Covers independent, direct current (DC) welding power sources and separate control units designed for electric arc stud welding with equipment and accessories.
• Midwest Fasteners, Inc.

MIL-Y-1140H
Yarn, Cord, Sleeving, Cloth, and Tape—Glass
Covers the basic forms of untreated glass fiber used by themselves or as components of other materials.
Class C—Continuous filament
• Alpha Associates, Inc.
• Auburn Mfg., Inc.
• Lewco Specialty Products, Inc.
Class S—Staple fiber

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Form 1—Yarn
  • Lewco Specialty Products, Inc.

Form 2—Cordage
  • Lewco Specialty Products, Inc.

Form 3—Sleeving
  • Lewco Specialty Products, Inc.

Form 4—Cloth
  • Alpha Associates, Inc.
  • Auburn Mfg., Inc.
  • Lewco Specialty Products, Inc.

Form 5—Tape
  • Alpha Associates, Inc.
  • Auburn Mfg., Inc.
  • Ideal Tape Co.
  • Lewco Specialty Products, Inc.

ELECTRIC BOAT SPECIFICATION – EB 4013
Anti-Sweat and Refrigerant Insulation Systems (Sheet and Tubes)
  • Armacell LLC
  • K-Flex USA

DOD-DTL-24688
Insulation; Polyimide, Sheet and Tube
  • Evonik Foams, Inc.

Miscellaneous Specifications and Standards

American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE)
  • ANSI/ASHRAE/IES 90.1, “Energy Conservation in New Building Design”
  • Terminology of Heating, Ventilation, Air Conditioning, and Refrigeration
  • ASHRAE 90.1 “Energy Standard for Buildings Except Low-Rise Residential Buildings”
  www.ashrae.org

U.S. Coast Guard
  • 46 CFR l 164.006 Deck Covering for Merchant Vessels
  • 46 CFR l 164.007 Structural Insulations
  • 46 CFR l 164.008 Bulkhead Panels
  • 46 CFR l 164.009 Noncombustible Materials
  • 46 CFR l 164.010 Structural Ceiling
  • 46 CFR l 164.012 Interior Finished

SCAQ MD
Regulation 1168-adhesives and coatings

Adhesives
  • Aeroflex USA
  • Armacell
  • Foster Products (HB Fuller Construction Products)
  • Industrial Insulation Group, LLC-MPT Division
  • Johns Manville Corp.
  • K-Flex USA

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• Pittsburgh Corning Corporation
• Vimasco Corp.

Type II—72-hour protection
• Armacell
• Foster Products (HB Fuller Construction Products)
• K-Flex USA
• Pittsburgh Corning Corporation
• Vimasco Corp.

Nuclear Regulatory Commission
• Regulatory Guide 1.36, “Non-Metallic Insulation for Austenitic Stainless Steel”

Corps of Engineers, Department of the Army

Manufacturers Standardization Society of the Valve and Fitting Industry, Inc.
• MSS Publication SP-69, “Pipe Hangers and Supports-Selection and Application” (1983)

Midwest Insulation Contractors Association (MICA)
• National Commercial and Industrial Insulation Standards (2011, Seventh Edition)

National Insulation Association (NIA)
• Insulation Science Glossary (November 2011)

Naval Facilities Engineering Command (NAVFACENGCOM)
• Guide Specifications (NFGS) for Use in Regular Military Construction Projects
  NFGS—07211 Loose Fill (Cellulosic and Mineral Fiber) Insulation
  NFGS—07218 Spray Applied Cellulose Insulation
  NFGS—07220 Roof Insulation
  NFGS—07221 Masonry Wall Insulation
  NFGS—07222 Tapered Roof Insulation
  NFGS—07230 Perimeter and Under-Slab Insulation
  NFGS—07232 Ceiling, Wall, and Floor Insulation
  NFGS—07250 Spray-On Fireproofing
  NFGS—07250 Fireproofing
  NFGS—15250 Insulation of Mechanical Systems

Federal Construction Guide Specifications (FCGS)
FCGS—07250 Sprayed Fire Protection
FCGS—07260 Firestopping Division 15-Mechanical
FCGS—15180 Insulation of Mechanical Systems

National Fire Protection Association (NFPA)
NFPA 90A—Standard for the Installation of Air Conditioning and Ventilating Systems
NFPA 90B—Standard for the Installation of Warm Air Heating and Air Conditioning Systems
For the latest version, contact NFPA at 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9109, (800) 344-3555, Fax (800) 593-6372, www.nfpa.org.

Model Building Codes
NFPA 5000, www.nfpa.org
International Code Council (ICC), www.iccsafe.org
Council of American Building Officials (CABO)