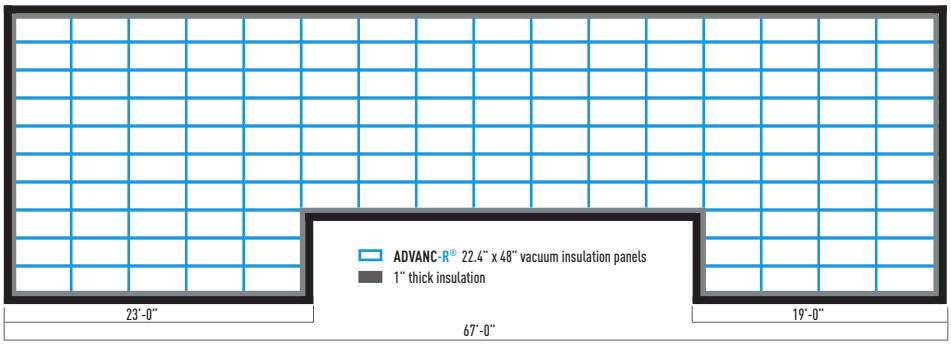
SPECIFICATION SHEET

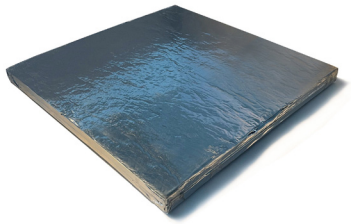
ADVANC-R® TAKEOFF

Scale: 0.0375" = 1'-0"



ADVANC-R®

VACUUM INSULATION PANEL



MASTERSPEC: 072100.12 - Glass-Wool Board Insulation - Thermal Insulation

PRODUCT: **ADVANC-R®** Vacuum Insulation Panels (VIP)

APPLICABLE MODELS:

TZC3500E	570 mm x 610 mm x 24mm 22.4" x 24" x 0.94"
TZC3490E	570 mm x 1220 mm x 24mm 22.4" x 48" x 0.94"

ISSUED DATE: May 2023

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass-wool vacuum insulation panels (VIP).

B. Related Requirements:

1. Section 072100 "Thermal Insulation" for foam-plastic board insulation used as VIP joint filler and protection.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Glass-wool VIP.
2. Adhesives.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

Panasonic

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Panasonic

ADVANC-R® VACUUM INSULATION PANEL

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indexes less than 25 and 450, respectively, when tested in accordance with ASTM E84.

B. Thermal-Resistance Value (R-Value): [R-value as indicated on Drawings] [R-value as indicated below] <Insert R-value> in accordance with ASTM C1484.
   1. R-Value at Center-of-Panel: R-66.

2.2 GLASS-WOOL VACUUM INSULATION PANELS (VIP)

A. Glass-Wool Vacuum Insulation Panel (VIP), Foil Faced <Insert drawing designation>: ASTM C1484, foil faced; Class A fire-rated in accordance with ASTM E84.

   1. Basis-of-Design Product: Subject to compliance with requirements, provide Panasonic Industrial Devices Sales Company of America, Division of Panasonic Corporation of America; ADVANC-R VIP or comparable product by one of the following:

      a. <Insert manufacturer's name>.

   2. R-Value at 0.94 inch (24 mm): 66.
   3. Compressive Strength at 25 percent: 14.3 psi (98.6 kPa) in accordance with ASTM C165.
   4. Density: 13.9 lbf/cu. ft. (223 kg/cu. m) in accordance with ASTM C1667.
   5. Surface-Burning Characteristics: Class A tested in accordance with ASTM E84.

      a. Maximum Flame-Spread Index: 25.
      b. Smoke-Developed Index: 10.

ADVANC-R® VACUUM INSULATION PANEL

2.3 ACCESSORIES

A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Carlisle Construction Adhesives.
   b. Elevate; Holcim Building Envelope.
   c. Foster Brand; H. B. Fuller.
   d. H. B. Fuller Company.
   e. Olybond Adhesives.
   f. OMG Adhesives.
   g. Polyglass; Mapei Group.
   h. Royal Adhesives & Sealants; H.B. Fuller Company.
   i. Tremco Incorporated.
   j. <Insert manufacturer's name>.

B. Joint Insulation Filler: See Section 072100 "Thermal Insulation" for board insulation.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation adhesion.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with filler insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's one standard thickness for width, and two standard lengths. Apply single layer of insulation units for each of the three assembly layers unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value. Roof insulation assembly layers include a base board insulation layer, a middle VIP layer, and a top board insulation layer.

ADVANC-R® VACUUM INSULATION PANEL

3.3 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation assembly.

1. Install glass-wool VIP between protective layers of polyisocyanurate, polyurethane, EPS, XPS, or other similar insulation board or commercial gypsum roofing products.

C. Installation Over Metal Decking:

1. Install base layer of insulation with [joints staggered not less than 24 inches (610 mm) in adjacent rows] [end joints staggered not less than 12 inches (305 mm) in adjacent rows] [and with long joints continuous at right angle to flutes of decking].

   a. Locate end joints over crests of decking.
   b. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
   c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
   d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
   e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
   f. Loosely lay base layer of insulation units over substrate.

2. Install upper layers of insulation[and tapered insulation] with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.

   a. Staggered end joints within each layer not less than 24 inches (610 mm) in adjacent rows.
   b. Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.
   c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
   d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
   e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
   f. Loosely lay each layer of insulation units over substrate.
   g. Adhere each layer of insulation to substrate using adhesive in accordance with FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

      1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
      2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
      3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

ADVANC-R® VACUUM INSULATION PANEL

3.3 INSTALLATION OF INSULATION - CONTINUED -

D. Installation Over Concrete Decks:

1. Install base layer of insulation with [joints staggered not less than 24 inches (610 mm) in adjacent rows] [end joints staggered not less than 12 inches (305 mm) in adjacent rows].

    a. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
    b. Fit insulation neatly around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
    d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
    e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
    f. Loosely lay base layer of insulation units over substrate.
    g. Adhere base layer of insulation to [concrete roof deck] [vapor retarder] in accordance with FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

        1) Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m), and allow primer to dry.
        2) Set insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
        3) Set insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
        4) Set insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

2. Install upper layers of insulation[and tapered insulation] with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.

    a. Staggered end joints within each layer not less than 24 inches (305 mm) in adjacent rows.
    b. Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.
    c. Fit insulation neatly around penetrations and projections, and fit tight to intersecting sloping roof decks.
    d. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
    e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
    f. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
    g. Loosely lay each layer of insulation units over substrate.
    h. Adhere each layer of insulation to substrate using adhesive in accordance with FM Approvals' RoofNav listed roof assembly
    ` requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
        1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
        2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
        3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

ADVANC-R® VACUUM INSULATION PANEL

3.3 INSTALLATION OF INSULATION - CONTINUED -

E. Installation Over Cementitious Wood-Fiber Decks:
   1. Install base layer of insulation with [joints staggered not less than 24 inches (610 mm) in adjacent rows] [end joints staggered not less than 12 inches (305 mm) in adjacent rows].
      a. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
      b. Fit insulation neatly around penetrations and projections, and fit tight to intersecting sloping roof decks.
      c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
      d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).

         1) Fit insulation so that water flow is unrestricted.

      e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
      f. Loosely lay base layer of insulation units over substrate.
      g. Adhere base layer of insulation to slip sheet in accordance with SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

         1) Set insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
         2) Set insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
         3) Set insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

   2. Install upper layers of insulation[and tapered insulation] with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.

      a. Staggered end joints within each layer not less than 24 inches (610 mm) in adjacent rows.
      b. Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.
      c. Fit insulation neatly around penetrations and projections, and fit tight to intersecting sloping roof decks.
      d. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
      e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).
      f. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
      g. Fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
      h. Loosely lay each layer of insulation units over substrate.
      i. Adhere each layer of insulation to substrate using adhesive in accordance with SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

         1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
         2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
         3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

ADVANC-R® VACUUM INSULATION PANEL

3.3 INSTALLATION OF INSULATION - CONTINUED -

F. Installation Over Lightweight Insulating Concrete Roof Decks:

1. Install base layer of insulation with [joints staggered not less than 24 inches (610 mm) in adjacent rows] [end joints staggered not less than 12 inches (305 mm) in adjacent rows].

    a. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
    b. Fit insulation neatly around penetrations and projections, and fit tight to intersecting sloping roof decks.
    c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
    d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).

    e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
    f. Fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
    g. Loosely lay base layer of insulation units over substrate.
    h. Adhere base layer of insulation to vented base sheet in accordance with FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

        1) Set insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
        2) Set insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
        3) Set insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

2. Install upper layers of insulation[and tapered insulation] with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.

    a. Staggered end joints within each layer not less than 24 inches (610 mm) in adjacent rows.
    b. Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.
    c. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
    d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches (610 mm).

        1) Fit insulation so that water flow is unrestricted.

    e. Fill gaps exceeding 1/4 inch (6 mm) with board insulation.
    f. Fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
    g. Loosely lay each layer of insulation units over substrate.
    h. Adhere each layer of insulation to substrate using adhesive in accordance with FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

        1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
        2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
        3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

ADVANC-R® VACUUM INSULATION PANEL

3.4 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, sharp objects, and other causes.

B. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100