SECTION  – blanket insulation

This section has been edited to include Gensler's Product Sustainability Standards ("GPS Standards") criteria, providing language for only the "Gensler Standard" tier of performance - the required minimum level of performance for sustainable attributes of the product. To include "Market Differentiator" level of performance or for any other questions, please contact your regional specification leader, Tim Taylor, or Kaley Blackstock.

1. GENERAL
   1. summary
      1. Supply and install the following as indicated in this Section:
         1. Glass Fibre Batt Insulation.
         2. Mineral Fibre Batt Insulation.
         3. Foamed-In-Place Insulation.
      2. Related Requirements:
         1. Section 04 20 00 – Masonry.
         2. Section 05 12 00 – Structural Steel.
         3. Section 05 40 00 – Cold Formed Metal Framing.
         4. Section 07 21 13 – Board Insulation.
         5. Section 07 26 13 – Above-Grade Vapour Retarders.
         6. Section 07 27 39 – Vapour Permeable Air Barrier Membrane.
         7. Section 07 42 13 – Solid Plate Aluminum Panels.
         8. Section 07 42 16 – Composite Aluminum Panels.
         9. Section 07 46 19 – Metal Wall Panels.
         10. Section 09 21 16 – Gypsum Wallboard.
   2. REFERENCE STANDARDS
      1. Underwriters Laboratories of Canada (ULC):
         1. CAN/ULC S702-09-AM1, Standard for Thermal Insulation Mineral Fibre for Buildings.
         2. CAN/ULC S114-05, Standard Method of Test for Determination of Non-Combustibility in Building Materials.
         3. CAN/ULC S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
      2. Canadian General Standards Board (CGSB):
         1. CAN/CGSB-51.10-92, Mineral Fibre Board Thermal Insulation.
   3. submittals
      1. Sustainable Design Submittals: Refer to Division 01 Section 01 81 33 – Sustainable Design Requirements – Embodied Carbon.
      2. Provide submittals in accordance with the General Conditions and Section 01 33 00 – Submittal Procedures.
      3. Affidavits:
         1. In lieu of samples and inspection procedures when required by CGSB Standards, submit affidavits, if requested, that materials supplied under these requirements meet CGSB Standards.
      4. Safety Data Sheets:
         1. Submit WHMIS safety data sheets for inclusion with project record documents. Keep one copy of WHMIS safety data sheets on site for reference by workers.
   4. INFORMATIONAL SUBMITTALS

The following submittal is a part of the GPS Standards and is required for all projects, relating to the Global Warming Potential (embodied carbon) limits established for select products. Contractors must submit a Type III EPD to verify that the product does not exceed the embodied carbon limits listed in Part II.

* + 1. Embodied Carbon Reporting: Type III Environmental Product Declarations, per ISO 14025 disclosing the Global Warming Potential of the product from Stages A1 through A3 in accordance with Section 01 81 33 – Sustainable Design Requirements - Embodied Carbon" for products listed under "Embodied Carbon Reporting" in Article "Quality Assurance."

The paragraph below aligns with edits made in January of 2023 to Gensler's master specifications for our GC3 initiative. This requires that contractors complete an EPD Reporting Form, referenced in 018133 "Sustainable Design Requirements - Embodied Carbon" disclosing (checking a box) if an EPD exists for the product, and to provide the EPD.

* + 1. Environmental Product Declaration (EPD) Disclosure Submittals: Completed Environmental Product Declaration Reporting Form in accordance with Section 01 81 33 – Sustainable Design Requirements - Embodied Carbon, for the following product types in this Section:
       1. Insulation batts.

The following submittal is a part of the GPS Standards and is required for all projects. This relates to VOC content limit requirements listed in Part II.

* + 1. VOC Content: Product data or laboratory reports showing compliance with VOC content limits.

The following submittal is a part of the GPS standards and is required for all projects. This relates to TVOC emissions testing reports or certificates listed under 'Quality Assurance' for select product types.

* + 1. TVOC Emissions: Laboratory test reports or third-party certificates showing compliance with the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" version 1.2-2017 for products listed under "TVOC Emissions" in Article "Quality Assurance."

The following submittal is a part of the GPS Standards and is required for all projects. This relates to material ingredient disclosure reports listed under 'Quality Assurance' for select product types.

* + 1. Material Ingredient Disclosure: Submit one of the following reports for products listed under "Embodied Carbon Reporting" in Article "Quality Assurance."
       1. Health Product Declaration.
       2. UL Product Lens.
       3. Living Building Challenge Declare Label or Living Product Challenge Label.
       4. EPEA Material Health Statement.
       5. Cradle-to-Cradle v4 Material Health Certificate or multi-attribute certificate.

The following submittal is a part of the GPS Standards and is required for all projects.

* + 1. Sustainability Reporting: Provide the following for insulation products.
       1. Recycled content, including Pre-consumer and post-consumer percentages.
       2. Biobased content.
       3. Manufacturing location.
  1. QUALITY ASSURANCE

Retain requirements below for LEED/WELL projects. Gensler's GPS requirements for CDPH testing (which is verified by a GreenGuard Gold Certification) is only required for unfaced mineral wool batt insulation at this time but will be required by Gensler's GPS standards for all board and batt products starting June of 2024.

* + 1. Low-Emitting Materials: For all thermal and acoustical applications of unfaced mineral wool batt insulation products, provide materials complying with the testing and products requirements of UL Environmental Validation and UL GreenGuard Gold certification.

The following requirement is a part of the GPS Standards and is required for all projects. This corresponds to the GPS Standards requiring that select products have EPDs. This document corresponds with an informational submittal required in this section. Edit list of product types below to align with the project. Note that starting in June of 2024, only product-specific EPDs will be permitted for products listed below (industry-wide EPDs will no longer be accepted).

* + 1. Embodied Carbon Reporting: Obtain the following products with the type of publicly available, third-party verified Type III Environmental Product Declaration (EPDs) listed below in accordance with Section 01 81 33 – Sustainable Design Requirements - Embodied Carbon.
       1. Glass-fiber batt: Industry-wide or product-specific Type III EPD.
       2. Mineral-wool batt: Industry-wide or product-specific Type III EPD.
       3. Spray-applied insulation: Industry-wide or product-specific Type III EPD.

The following requirement is a part of the GPS Standards and is required for all projects. This corresponds to the GPS Standards requiring that select products have testing reports or certificates for the California Department of Public Health (CDPH) Standard Method v1.2-2017 emissions testing ("TVOC emissions"). This document corresponds with an informational submittal required in this section.

* + 1. TVOC Emissions: Obtain the following products with publicly available reports or certificates verifying compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" version 1.2-2017, following the private office scenario:
       1. Unfaced mineral-wool batt.
       2. Unfaced glass-fiber batt.
       3. Adhesive.

The following requirement is a part of the GPS Standards and is required for all projects. This document corresponds with an informational submittal required in this section.

* + 1. Material Ingredient Disclosure: Obtain the following products with publicly available reports disclosing material ingredients to residuals no greater than 1000ppm:
       1. Glass-fiber batts.
       2. Mineral-fibre batt.
  1. DELIVERY, STORAGE, HANDLING AND PROTECTION
     1. Handle and store material in accordance with the manufacturer's recommendations.
     2. Materials shall be delivered to the job in their original packages and containers bearing the manufacturer's labels intact and clearly visible.
     3. Store materials in dry, watertight areas and protect to prevent damage by other trades.
     4. Do not expose rigid insulation board to sunlight after installation. Protect it with black polyethylene or tarpaulin cover as recommended by manufacturer if permanent covering is not completed within twenty-four (24) hours.

1. products
   1. MATERIALS
      1. Glass Fibre Batt Insulation:
         1. Unfaced, preformed glass fibre batt insulation in accordance with CAN/ULC S702-09, Type 1; having a nominal RSI of 0.55/25 mm, thickness as required to meet design insulation values indicated on drawings or as required to fill insulated spaces where not indicated; formaldehyde free, manufactured using recycled glass.
         2. Basis of Design Materials:
            1. Owens Corning Canada Inc., Pink Fiber Glass Insulation.
            2. CertainTeed Sustainable Insulation.
            3. Johns Manville Formaldehyde Free Batt Insulation.
      2. Mineral Fibre Batt Insulation:
         1. Unfaced, semi-rigid mineral slag batt insulation in accordance with CAN/ULC S702-09, Type 1; having a nominal RSI of 0.67/25 mm; rated non-combustible in accordance with CAN/ULC S114-05 and having a flame spread rating of five (5) or less in accordance with CAN/ULC S102; density 32 kg/m3; square edges, thickness as required to meet design insulation values indicated on drawings or as required to fill insulated spaces where not indicated.

Retain one of the two subparagraphs below. The first subparagraph aligns with the ‘Gensler Standard’ of the GPS criteria and will be typical for most projects. The second subparagraph aligns with the ‘Market Differentiator’ level of performance. Retain ‘Market Differentiator’ requirements only if the project intends to maintain an enhanced level of sustainability performance for product selections. The GWP value is found within the product specific EPD, for which an action submittal is required to validate compliance.

* + - 1. Embodied Carbon: Maximum Global Warming Potential for Production Stages A1 through A3 as defined in Section 01 81 33 "Sustainable Design Requirements - Embodied Carbon": 3.3 kg of CO2eq per m2.

The following products below have reported GWP values (as of 1/1/2024): Rockwool AFB = 1.31 kgCO2-eq/m2; Rockwool AFB Evo = 1.179 kgCO2eq/m2; Thermafiber Formaldehyde Free SAFB Blankets = 2.03 kgCO2eq/m2 (Wabash IN plant), 1.03 kgCO2eq/m2 (Joplin MO plant).

* + - 1. Basis of Design Materials:
         1. Rockwool Inc., Rockwool AFB.
         2. Thermafiber, Formaldehyde Free SAFB Blankets.
    1. Foamed-In-Place Insulation:
       1. Two component polyurethane froth/spray kit, UL Class I (flame spread of 25 or less), Great Stuff by Dow Building Solutions Inc., or approved equal.

1. execution
   1. preparation
      1. All materials and methods used in application shall be in strict accordance with the printed instructions of the manufacturer.
      2. Remove stains, defective work or materials when directed by the Consultant and replace with approved work and materials at no cost to Owner.
      3. Clean all surfaces of dust, dirt, and projecting surfaces prior to the application of insulation.
      4. Do not install insulation when ambient air and surface temperatures are below 4 deg C (40 deg F) or more than 38 deg C (100 deg F). The temperature shall be maintained in the building during and after installation as necessary by the above requirement and as directed for curing of the adhesive. Obtain approval prior to proceeding with application of adhesive and insulation.
   2. installation
      1. Install insulation to maintain continuity of thermal protection to building elements and spaces.
      2. Cut insulation to fit around electrical boxes, pipes, ducts, openings, corners, and all protruding obstructions occurring on the surface to be insulated and seal with adhesive.
      3. Keep insulation minimum of 75 mm (3") away from heat emitting devices.
      4. Trim and cut insulation neatly to fit spaces. Butt joints tightly, offsetting vertical joints. In multiple layer application, offset both vertical and horizontal joints.
      5. Install batt insulation in locations and thicknesses shown. Seal joints to prevent transfer of moisture.
      6. Apply foamed-in-place insulation at exterior walls, around penetrations through walls and where indicated. Apply foamed-in-place insulation with suitable equipment in accordance with the manufacturer's written instructions. Fill all joints completely, leaving no voids or gaps and trim excess material.

end of section