

SECTION 072000

BOARD INSULATION

PART 1

GENERAL

1.1 DESCRIPTION

- A. Work of this section, as indicated on the drawings and specified herein, pertains to the fabricating, furnishing and installing of cellular glass insulation board for use as thermal barrier in walls, roofs and any other locations indicated in the documents.

1.2 REFERENCES

- A. The minimum standards for products specified in this section shall be including as under but not limited to the following. Except as otherwise specified herein, perform work in accordance with specifications, codes and standards cited therein, and their latest applicable addenda and supplements. Where there is conflict between the reference standards the most stringent of the conditions/requirements shall be applicable.

- B. American Society for Testing and Materials - ASTM:

C165/240/522	-	compressive strength
C177/518	-	thermal conductivity
C240	-	absorption of moisture
C303	-	density
E84	-	flame spread and smoke development
E96	-	water-vapor permeability
E136	-	combustibility

- C. European Norm, according EN13167 - EN:

EN1602	-	density
EN12667/12939	-	thermal conductivity
EN13501-1	-	reaction to fire
EN826	-	compressive strength
EN1609/12087	-	water absorption
EN12086	-	water vapor transmission

1.3 SUBMITTALS

- A. The following Submittals shall be submitted.
1. Product data and samples.
 2. Method of installation
 3. EPD Environment Product Declaration according ISO14025

1.4 WARRANTY

- A. Provide a warranty of 20 for not absorbing moisture, retaining insulation performance and dimensional stability under normal conditions and use.

PART 2

PRODUCTS

2.1 PRODUCTS SUPPLIERS AND MANUFACTURERS

- A. Pittsburgh Corning Europe N.V., Tessenderlo - Belgium
B. FOAMGLAS® Dubai, United Arabian Emirates
C. Or equal

2.2 MATERIALS

- A. **Flat roof insulation with flat or tapered material (TAPERED ROOF SYSTEM).** In slabs or boards according supplier recommendation. Thickness according to the drawings or specification. Cellular glass insulation with following characteristics.
1. Type: FOAMGLAS® T4+ in slabs or boards or equivalent
 2. Density: 115kg/m³. ASTM C303, EN 1602
 3. Thermal conductivity at 10° C: 0.041W/mK, ASTM C-518/C177, EN 12667/12939/10456
 4. Compressive strength: >600 kPa, ASTM C165/C240/C552, EN 826
 5. Water Absorption: 0.2% (only moisture retained is that adhering to surface cells after immersion), ASTM C240, EN1609/12087
 6. Water vapor permeability shall be 0.0 (zero) per inch, ASTM E96
 7. Reaction to fire: Non-combustible, ASTM E136, Flame spread 0 (zero) and smoke development 0 (zero), ASTM E84. Euro class A1, EN13501
 8. Ecology: Produced with minimum recycling glass content > 60% and low emission to full fill environment requirement and enable LEED credits.
- B. **Flat roof insulation for average trafficable areas with flat or tapered material (TAPERED ROOF SYSTEM).** In slabs or boards according the supplier recommendation. Thickness according to the drawings or specification. Cellular glass insulation with following characteristics.
1. Type: FOAMGLAS® S3 in slabs or boards or equivalent
 2. Density: 130kg/m³. ASTM C303, EN 1602
 3. Thermal conductivity at 10° C: 0.045W/mK, ASTM C-518/C177, EN 12667/12939/10456
 4. Compressive strength: >900 kPa, ASTM C165/C240/C552, EN 826
 5. Water Absorption: 0.2% (only moisture retained is that adhering to surface cells after immersion), ASTM C240, EN1609/12087
 6. Water vapor permeability shall be 0.0 (zero) per inch, ASTM E96
 7. Reaction to fire: Non-combustible, ASTM E136, Flame spread 0 (zero) and smoke development 0 (zero), ASTM E84. Euro class A1, EN13501
 8. Ecology: Produced with minimum recycling glass content > 60% and low emission to full fill environment requirement and enable LEED credits.
- C. **Flat roof insulation for high load trafficable areas with flat or tapered material (TAPERED ROOF SYSTEM).** In slabs or boards according the supplier recommendation. Thickness according to the drawings or specification. Cellular glass insulation with following characteristics.
1. Type: FOAMGLAS® F slabs or boards or equivalent
 2. Density: 165kg/m³. ASTM C303, EN 1602
 3. Thermal conductivity at 10° C: 0.050W/mK, ASTM C-518/C177, EN 12667/12939/10456
 4. Compressive strength: >1600 kPa, ASTM C165/C240/C552, EN 826
 5. Water Absorption: 0.2% (only moisture retained is that adhering to surface cells after immersion), ASTM C240, EN1609/12087
 6. Water vapor permeability shall be 0.0 (zero) per inch, ASTM E96
 7. Reaction to fire: Non-combustible, ASTM E136, Flame spread 0 (zero) and smoke development 0 (zero), ASTM E84. Euro class A1, EN13501
 8. Ecology: Produced with minimum recycling glass content > 60% and low emission to full fill environment requirement and enable LEED credits.
 - 9.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate, adjacent materials, etc. are ready to receive insulation.
- B. Verify substrate and adjacent are ready to receive insulation. Are flat, free of honey comb, fins, irregularities and materials or substances that may impede adhesive bond and are free of matter detrimental to installation of uniform layer of insulation.

3.2 INSTALLATION

- A. **Compact flat roof application with flat or tapered insulation applied on concrete:**

Follow the supplier recommendation. Apply a primer coat of bitumen emulsion to concrete deck. Cellular glass insulation slabs are applied to the deck with hot bitumen poured from the can or cold adhesive. The slabs are laid in parallel courses with staggered and bitumen filled joints. The slabs are pressed down and pushed diagonally into position.

For compact roof application, and, if not other specified, the system will require a bituminous double layer waterproofing fully bonded to the surface of the cellular glass insulation.

- B. **Compact flat roof application with flat or tapered insulation applied on metal substructure:**

Follow the supplier recommendation. Apply a primer coat of bitumen emulsion to the crowns of the cleaned and grease-free deck. Apply cellular glass insulation slabs to the deck with hot stable bitumen using the dipping method. The slabs are laid staggered in parallel courses with the long edge parallel to the troughs of the deck, joints butted and filled with bitumen.

For compact roof application, and if not other specified, the system will require a bituminous double layer waterproofing fully bonded to the surface of the cellular glass insulation.

If special noted in the drawings or specification the cellular glass board can be alternatively fixed mechanically or applied with cold adhesive.

- C. **Inverted roof application with flat or tapered insulation:**

Follow the supplier recommendation. Cut insulation board tightly to any adjacent parts and butt insulation boards tightly. Apply insulation to ensure total and complete coverage of the surfaces and in direct contact with such surfaces.

For inverted roof application, and if not other specified, the system will require a separation layer of PE-foil 0.2mm loose laid or similar on the surface of the cellular glass insulation.

Inverted roof application with cellular glass insulation is only permitted in areas where the temperature is not dropping below zero degrees.

3.3 PROTECTION OF INSTALLED CONSTRUCTION

- A. Do not permit work to be damaged prior to covering insulation.

END OF SECTION