

Celcore[®] Roof Insulation Specification

SHORTFORM

SCOPE

The approved Celcore Applicator shall furnish all labor, materials, equipment and supervision for the installation of the complete insulating roof deck system (including corrugated metal deck when applicable) as noted on drawings, and as detailed in the specifications.

GENERAL

Surfaces on which Celcore Insulating Concrete is to be placed shall be clean of foreign objects, and free of standing water. It is the responsibility of the Celcore Applicator to inspect and approve the substrate prior to the placement of the Celcore deck system. All expansion joints, bulkheads, wood nailers, angles and the framing of openings or perimeters shall be provided by others.

MATERIALS

Insulating Concrete:

- 1.) Foaming Agent - Celcore Concentrate is manufactured by Celcore Incorporated. The concentrate shall have clear identification on each container.
- 2.) Cement - Portland Cement shall be Type I, II, III ASTM - C150 unless otherwise approved.
- 3.) Water for mixing and curing shall be clean, fresh, and free from injurious quantities of acid, alkali, salt, oil, organic matter or other impurities. Installation during cold weather may require the use of heated water.
- 4.) Admixtures - No admixtures shall be used without the approval of Celcore Incorporated, the Architect, and/or the Engineer. Approved admixtures shall be used in strict accordance with the manufacturer's recommendations.

Corrugated Metal Deck:

The galvanized high strength corrugated steel deck shall be of type and quality that is recommended by its manufacturer for use as a supporting deck for Insulating Concrete. The steel deck shall have a minimum thickness of 26 gauge, and shall meet ASTM-A525 G-60 minimum galvanizing treatment, and be of type and gauge to properly carry the live and dead loads. Attachment of the deck to the supporting members shall be by welding or by screw fastening, done in accordance to the recommendations of the manufacturer, the Building Code requirements, the Architect and/ or the Engineer. Slotted or perforated deck, if used, shall not exceed ½ % opening.

Insulation Board:

The insulation board used in the Celcore roof deck system shall be a product of expanded polystyrene having a minimum nominal density of one pound per cubic foot. The Board shall be fabricated in 2 ft. by 4 ft. size in specified thickness with 6 or 8 - 2 ½ inch (+/- ½") diameter holes to provide a positive keying action. All insulation board shall be manufactured in accordance with ASTM C578. ([See attached](#))

Reinforcing Mesh:

When required, mesh reinforcements shall be equal to keydeck Type 21602-1619.

APPLICATION

Physical Properties:

The mix proportions shall be designed by Celcore Incorporated to yield the proper physical properties, i.e compressive strength, density and thermal conductivity.

Mixing & Placing:

- 1.) Celcore Insulating Concrete shall be mixed and pumped into place by an approved Celcore batch plant. All ingredients of the mix shall be thoroughly blended before being discharged from the mixer.
- 2.) A wet density of 36 - 42 (+/- 3) lbs/ft³ shall be maintained at the place of deposit.
- 3.) The consistency of the mix shall be such as to provide a flowable mixture that can be screeded to a smooth finish.
- 4.) Celcore Insulating Concrete shall have a minimum thickness of 2" over the top of the corrugations, substrate or insulation board.
- 5.) When the air temperature is predicted to be above 40°F for the first 24 hours after the placement of the Celcore insulating deck, normal placing procedures shall apply.
- 6.) Cold weather placement (40°F and falling) of Celcore Insulating Concrete should be avoided due to the possibility of freezing of the concrete prior to final set. If cold weather installations are required, then special considerations must be met. Contact your Celcore representative.

Insulation Board Placement:

- 1.) Prior to placement of the insulation board, the substrate shall be filled with Celcore Insulating Concrete to a minimum thickness of 1/8". On a corrugated metal deck this fill shall be 1/8" minimum above the tops of the corrugations.
- 2.) The insulation board shall be placed into the plastic slurry coat within immediately upon the placing of the slurry coat on the substrate.
- 3.) The insulation board shall be placed in the slurry in such a manner as to cause full contact of the slurry with the board, and to cause the slurry to enter the keying holes in the board. The board shall be placed in a brick-like pattern of staggered joints. All joints shall be butted tightly together. ([See attached](#))
- 4.) Polystyrene board, particularly the thickness of 2" or more, have a tendency to float if the top surface is applied prior to the adequate bonding of the polystyrene board to the substrate. It is the responsibility of the Celcore applicator to install this board by a method to assure proper thickness of the top cover.

Curing:

Apply a [Celcore \(PVA\) Curing Compound](#) film over deck surface as early as is practical once the deck has developed strength sufficient to support foot traffic. Curing is most effective when applied within 24 hours after topping placement. This (PVA) film shall be an integral part of the deck system. Prevent excess roof traffic for 24 hours.

Testing:

Celcore Insulating Concrete shall be tested in accordance with ASTM C495, as modified below:

- 1.) Test specimens shall be 3" x 6" cylinders or test cubes not smaller than 2" x 2", or larger than 6"x 6".
- 2.) In molding the specimens, the concrete shall be placed in two approximately equal layers. The cylinders or cubes shall be raised and dropped approximately (1) in. three times on a hard surface after placing each layer. The concrete shall not be rodded.
- 3.) Specimens shall not be removed from the molds for at least 7 days.

END OF SECTION