



Technical Bulletin

COMMENTARY ON SLOTTED OR PERFORATED STEEL DECK

CELCORE does not require nor recommend the use of perforated or slotted steel deck to be used in conjunction with its cellular insulating concrete **ROOF DECK INSULATION SYSTEM**. Slotted or perforated steel deck is a deck panel system which was introduced to the building industry to allow for underside of deck drying of insulating concrete deck systems which utilize expanded mineral aggregate to attain their low-density characteristic.

During the batch process, aggregate lightweight insulating concrete utilizes quantities of mix water substantially greater than that required to produce cellular concrete. The mix water requirement is greater due to the necessity to **saturate** the aggregate during batching in order to produce a pumpable and workable material for placement. Perforated or slotted steel decking is used in conjunction with these expanded mineral aggregate systems to allow underside-of-deck drying of the "aggregate" within the fill once the cementitious component [cement] of the material has consumed the moisture needed for [hydration] hardening.

Cellular insulating concrete does not use expanded mineral aggregate in its composition. Celcore cellular concrete attains its low-density characteristic using "preformed foam", a process which entrains an air cell network within the fill. Most of the water used for batching cellular concrete is intended for the purpose of cement hydration. Water consumed by hydration becomes chemically bound with the hardened fill and is no longer free water. The air cells of the product do not require saturation during mixing, subsequently therefore do not need drying. Accordingly, slotted or perforated steel deck is not required.

Notably, steel deck parent assemblies are panel constructions, therefore, they should not be considered monolithic. They inherently allow opportunity for passive venting to occur at panel side and end laps.

When slotted or perforated steel deck remains a design preference or a requirement of local governing building code, Celcore recommends the use of decking having an open area of perforation equal to 0.5% or less. All steel deck used in conjunction with insulating concrete deck fill shall be galvanized.

CELCORE ROOF DECK INSULATION SYSTEMS have many decades long, successful history, of placements over non-perforated steel deck. These in-service systems include buildings with a wide array of interior **uses**, in all climatic locations and waterproofing roof covers of almost every type.

The best time proven practice for achieving the best overall success for any roofing project that has an above-deck insulation system, is the timely subsequent application of the protective waterproofing roof cover. Prolonged, unnecessarily delayed, uncovered open exposure of a roof deck placement, beyond that necessary for the proper construction of the above-deck waterproofing roof cover should be considered an abuse of the **INSULATION SYSTEM**.

Celcore Incorporated seeks to present reliable information concerning the composition, properties and use of its products. The information shown above however is provided **AT NO CHARGE AND WITH NO WARRANTY, EXPRESSED OR IMPLIED**.