



Lightweight Insulating Concrete – XCS® LIC

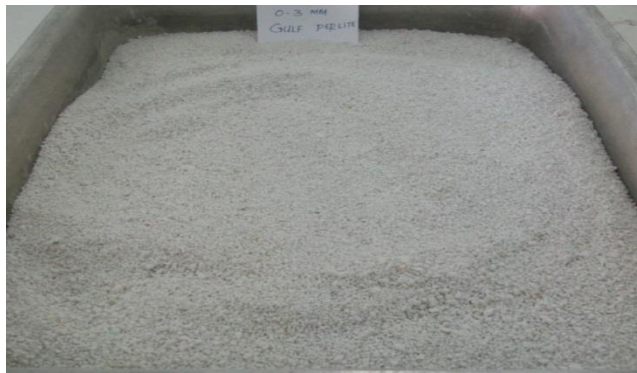
Introduction

Lightweight Insulated Concrete is a low wet-density mix which has been developed through trials, in conjunction with Contractors site requirements, to be compliant with Projects Technical Specifications, such as Saadiyat Island Resort and others.

Lightweight Insulated Concrete it is a mixture of cement, water, perlite, superplasticizer and air entraining admixture. Air entraining admixture is optional subject to the wet density target.

What is Perlite?

“It is a 100% natural volcanic glass mineral formed by sudden cooling and solidification of volcanic ash which traps crystalline water into mass”. Perlite when heated in temperature of ranging 800°C to 950°C expand its volume from 4 to 20 times causing the formation of white muscles glass bubbles. This gives superior thermal & acoustic insulation properties including extremely lightweight density of between 32 and 200 kg/m³. Refer picture 1 Perlite 0-3mm fraction sample



Picture 1 Perlite 0-3mm sample

Description

A wet density within the range of 700-820kg/m³ is achieved using Perlite aggregate (0-3mm) with the blending of Portland Cement.

Strict batching guidelines are required to create this specialist product, which is suitable as an insulated concrete over roof decking, joint filler, etc. The product is flowable and it has good workability which allows it to be pumped.

With addition of the Perlite air entraining chemical admixture in compliance with BS 5075 part 2 or BS EN 943 part 2 & 6, it achieves the wet density. The dosage of the air entraining admixture is varied based on the wet density requirement.



Picture 2 LIC cube sample

Technical Data

- W/C 0.92
- Cement content 333 kg/m³
- Workability is pumpable
- Compressive strength 1.3MPa @28d
- Oven dry density 465 kg/m³
- Free from bleeding & segregation



Xtramix Concrete Solutions LLC.

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Xtramix Group of Companies

Technical R & D

XCS - Product Datasheet

- Wet density average 710 kg/m³
- SSD sample density 580 kg/m³
- Slump retention at 90 minutes 140mm

- It does not rot-off or deteriorate
- When necessary it can be mixed at site using site movable mixer and reducing cost of placement

Pump Method

Lightweight Insulated Concrete is a uniform mixture for insulation application system, and it is typically pumped at lower bar pressure. Placing using bucket, transit-mixer chute can be used.

The location to be poured will be inspected by our experts, who may recommend the actual condition placement method. XCS can request approved drawing of the intended structure for Lightweight Insulated Concrete placement technique.

Uses

- Fill over roof decking
- Perimeter joint filler
- Roof fills construction
- etc

Benefits

- Easy workability which leads easy to handle & transfer due its low weight
- Lightweight Insulated Concrete is prepared in the batching plant to maintain consistent quality
- Technical support by XCS all the times
- Lightweight Insulated Concrete mix is locally produced to enhance LEED MR-5 and Estidama SM-9 under 'Stewarding Materials' category to achieve Pearl Building Rating System
- QC Technicians are deployed at site for density & workability checking

Safety Precautions

During pumping the pressure shall be carefully regulated in order to avoid spillages at pump joints. Lightweight Insulated Concrete application shall be done under the direct supervision of an XCS Foreman. No activity is recommended around the pump hose or pipe during pumping. Any pipe blockage should be washed down quickly with water. Similar precaution is applied when bucket or chute is use.

Quality & Care

Lightweight Insulated Concrete has been developed by XCS Technical R&D Team to meet the special project requirements, and taking into account GCC weather conditions. It is produced by XCS Abu Dhabi in our batching plants and is designed under Integrated Management System (IMS) independently certified to conform to the requirements of quality ISO 9001, environmental ISO 14001 and occupational health & safety ISO 18001 standards.

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