MEGASLAB™ & Calciment

Value Engineered Solutions Working Together

Construction - Project Overview

Background

Jason Adams, of Sinclair Construction Group, and Sylvester Schmidt, an industry expert, recently developed MEGASLAB™ as the first ever joint-less, impermeable concrete system utilizing nanotechnology. Their concrete mix utilizes this sophisticated nanotechnology, paired with a proprietary blend of durable and flexible admixtures and is the first major disruption the concrete industry has seen since Portland Cement was created in the 1800s. The elimination of control joints and unmatched durability brings down total project costs, reduces maintenance issues, and extends the overall life of the concrete. Calciment was introduced into the market over twenty-five years ago and has been used to facilitate construction and support slabs on thousands of projects. A nationally recognized product developer teamed up with Sinclair Construction Group and Mintek Resources on a 48,000 SF headquarter expansion project in NE Georgia. MEGASLAB™ was ready to tackle their very first project of scale and show the impact this new solution would have on the industry.

Challenge

The project timeline required MEGASLAB™ to be poured in November 2018 during the second wettest winter on record in NE Georgia. This timeline proved difficult, as the in-situ material was unworkable and unable to achieve the bearing capacity required to support the building. The three options were to remove the poor soil and import aggregate, chemically treat the building pad subgrade, or wait until the weather improved. As the cost of cut-and-fill and postponing the project was prohibitive, a solution was needed that would dry out the soil quickly.

Solution

While reviewing options to accelerate drying of the in-situ soil, MEGASLAB™ discovered Mintek Resources, a company that supplies a variety of solutions that assist with drying, modifying, and stabilizing wet, weak, unworkable soils in construction applications. Mintek's flagship product, Calciment, has been used for decades on projects across the U.S. to keep projects on track by offering fast drying and improved workability of native soils. This economical reagent contains a unique blend of lime and pozzolans to allow fast dewatering, PI adjustment and strength gains for long-lasting pavement structures.

After reviewing all of the options, Calciment was selected for this inaugural MEGASLAB™ project due to its high economic value versus alternative methods and its ability to quickly dry and modify the soil to keep the project on time and on budget. Calciment was spread at a 5% dose rate and mixed to a depth of 12" with a road reclaimer.

Results

Calciment allowed the project to continue in the midst of a cold and wet fall season. However, the results didn't stop there. In a typical warehouse slab design, aggregate is placed at a predetermined thickness on the building pad prior to pouring a concrete slab. However, after Calciment was incorporated into the subgrade, the bearing capacity was improved to the point that the aggregate was value engineered out of the project – providing a significant cost savings to the overall project!

Lasting Success

Calciment allowed the project to progress without delay due to the strength gains. Sinclair Construction Group will continue to consider incorporating Calciment into future MEGASLAB™ projects!