



KOMPONENT® MAXIMIZES PERFORMANCE IN ALDI'S GRANOLITHIC CONCRETE SLAB DESIGN

Project Type:

Industrial, Distribution Center

Application:

Interior slab-on-grade

Location:

North Dinwiddie, VA

Project Dates:

December 2018–May 2019

Project Owner:

Aldi Foods

Contractor:

Fricks

Project Size:

600,000 sq. ft. (55,742 sq. m.)

Product:

Komponent®

Aldi, a global leader in essential, no-frills grocery supply, recently completed another successful expansion of their U.S. operations with a 600,000 sq. ft. (55,742 sq. m.) distribution center in North Dinwiddie, Virginia. Headquartered in Germany and operating in 19 countries around the world, this project is part of Aldi's global expansion initiative to provide economical food staples to communities and families around the world.

For their new distribution facility in North Dinwiddie, Virginia, the owner selected a Komponent® shrinkage-compensating, granolithic concrete interior slab design to maximize durability and achieve minimal maintenance.

By combining the improved abrasion resistance of a Komponent® shrinkage-compensating concrete slab with the hard aggregates and slightly textured finish used in a granolithic design, Aldi achieved a high-performance slab solution that helps meet operational objectives for low maintenance facilities and maximum in-service time while improving safety and aesthetics.

Komponent is a Shrinkage-Compensating Cement additive that offers many advantages in floor slab design. It is used to overcome negative volume change, prevent drying shrinkage cracking, eliminate slab curl and dominant joints, and extend construction joints up to 150 feet (45.7m) with no saw cuts. (This effectively eliminates airborne silica dust and improves overall air quality during construction).

PROJECT PROFILE

Komponent® is blended with local portland or Type 1L cement to create Type K Cement (ASTM C845). Mix designs are refined based on ASTM C878 testing (Standard Test Method for Restrained Expansion of Shrinkage-Compensating Concrete) to ensure the dosage of Komponent effectively compensates for the shrinkage-characteristics of the mix and achieves a net-zero shrinkage.

The North Dinwiddie facility construction involved placing a 7.25 in. (190.5 mm) Komponent slab with a minimum .05 expansion, per project specifications. The concrete mix design used a 4,000 psi six sack mix that contained approximately 16% Komponent cement additive with a w/c of 0.5. The use of Komponent enhanced compressive strengths, which exceeded specification requirements by 10-15%. The 0.5 w/c ratio ensured both workability during placement and efficient hydration of the Type K concrete.

Komponent shrinkage-compensating concrete slabs are full-depth single-lift placements that are followed by a wet cure period. For this granolithic design, the owner chose to implement additional measures to maximize abrasion and impact resistance. The base slab was placed and screeded using a laser screed. The finishing head of the laser screed was removed, achieving a rough texture in the concrete surface that allowed for a strong bond between the base slab and the granolithic topping slab. Water cure was followed by placement of the 3/4 in. (19 mm) dewatered traprock topping with a hard steel trowel finish. The topping was produced onsite using a volumetric mixer for maximum efficiency and minimal waste.

This Komponent shrinkage-compensating concrete slab placement delivered as expected. High durability with minimal joints. For this facility extending joints to 110 ft. x 110 ft. (33.5m x 33.5m) aligned with column spacing and helped maximize installation efficiencies.

With numerous facilities constructed using a high-performance Komponent shrinkage-compensating concrete slab, Aldi has come to expect this best-in-class performance in all of its facilities. And Komponent consistently delivers!

For more information on how Komponent® shrinkage-compensating concrete can improve the durability and performance of your next project, contact a member of our Engineered Sales Team. (800) 929-3030 info@CTScement.com