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Commercial Building Utilizes GCP Technologies' Solution to Provide Durability

STRUX® 90/40, ECLIPSE Floor® , and ADVA® 140M were crucial to creating a durable concrete floor

Project	Safeguard Building Products Manufacturing Plant
Owner	Safeguard Building Products, Hattiesburg MS
Concrete Supplier	Southeastern Concrete Company, Hattiesburg MS
Contractor	Cajun Concrete Services Inc., Boutte LA
GCP Solutions	STRUX® 90/40 macro fibers, ECLIPSE® concrete admixture, ADVA® mid-range water reducer

Project Profile

In the southeastern U.S. and especially the Gulf Coast region, high winds and wet weather can wreak havoc on wood homes. Driven by the increased demand for more durable homes, Andrew Marshall, owner of Safeguard Building Products, needed a new commercial building plant for manufacturing his company's metal studs and wind-resistant metal homes.

"We're really happy the way this concrete has performed; the cost of the admixtures was definitely worth the expenditure. That's important when you're looking at the numbers. This admixture in lieu of steel and the labor costs of placing steel definitely worked out in the plus. The whole admixture worked like a champ. The pumpability, the consistent slumps, the set times — everything went according to spec and I think the owner's going to be thrilled with the longevity of the floor. "

–

Harry LeBlanc, Cajun Concrete Services Inc.

The challenge was that the new facility needed a high performance floor that would stand up to the rigors of busy operation. To ensure he got a durable concrete floor that would minimize shrinkage and cracking, Marshall turned to Doug Lambeth at Southeastern Concrete Company.

Drawing on his years of experience working with admixtures, Lambeth proposed an innovative concrete mix that would provide the results Marshall wanted—without the need for costly rebar or wire mesh reinforcement. He contacted GCP Applied Technologies for help. They, alongside the Engineering Services Group, worked with the owner's structural engineer to help put any doubts to rest. To design the optimal mix, the team also relied on GCP's Slab On Ground Software—a valuable tool that helped determine the best dosages for the 2,500-yard concrete pour.

The specialized 4,000 p.s.i. mix included GCP's STRUX®90/40 synthetic macro fiber reinforcement, an alternative to rebar or welded wire mesh, that maximizes crack control, fatigue resistance and durability. In addition, Eclipse®Floor shrinkage reducing concrete admixture was added to minimize shrinkage and cracking during drying and enable extended joint spacing, and ADVA®140M was used as a mid-range water reducer for pumpability and workability.

"I really thought the heavy dose of fiber in the mix was going to be a problem from a pumpability standpoint, but it didn't cause us any grief at all," said the contractor, Harry LeBlanc of Cajun Concrete Services. "We pumped and finished the concrete just the way it was all planned out on paper."

The commercial building floor was finished with a laser screed, cut the same day, and covered with a vapor barrier after placement for seven days to maintain the desired moisture level.

"Even with our early entry soft cut sawing, we didn't see any cracking at all," added LeBlanc. "I thought that was pretty phenomenal."

The extended spacing also meant lower labor costs for the commercial building since fewer joints needed to be cut and maintained.

"It's just a great mix to pour," noted Marshall. "We got set times that were totally accurate, the performance we needed, and the mix enabled us to extend control joints to as far as 25 feet which worked better with our column spacing and helped our design team."

In fact, the owner was so pleased with the hard work of everyone on the job, that at the end of each workday, he had a barbecue to feed everyone on the site.

Asked whether he'd use the mix design in the future, Marshall responded simply, "I don't think I'd pour concrete again without it. That's how well I think it performed."

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Project briefcase

ADVA® 140M water reducing admixture

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