

STRUX® 90/40

Synthetic Macro Fiber Reinforcement

Time and labor savings in store with STRUX® at new supercenter



Wal-Mart Parking Terrace

Salt Lake City, Utah

Wal-Mart's new Salt Lake City Supercenter at 1300 South 300 West offers shoppers everything from groceries and general merchandise to a McDonald's, vision center, hair salon and portrait studio all under one roof. Encompassing more than 200,000 square feet of retail space, the store attracts thousands of shoppers from throughout Salt Lake County each year.

The store's location in a crowded urban area limited the available room for open air surface parking. The solution to accommodate the heavy traffic was construction

of a one-level supported parking terrace that would more than double the capacity.

Carl Walker, Inc., structural engineers for the project, specified Grace's STRUX® 90/40 synthetic macro fibers to reinforce the slab-on-ground concrete of the parking terrace, as well as other high traffic areas at the new store, such as the pedestrian ramp connecting the terrace and the store, and the delivery area in the busy loading docks. Carl Walker, Inc., which has been involved in the completion of approximately 500 parking studies, and design of over 1,000 new multi-level parking facilities, had successfully used STRUX in a number of previous jobs.

"By using STRUX, we saved on time and labor because we could drive our trucks directly on the grade to pour the concrete. In all, STRUX 90/40 passed the test with flying colors."

Rod Higley
Jack B. Parson Companies

"When STRUX was first introduced, we jumped on the bandwagon for slab-on-ground applications. One of the reasons we like STRUX so much is that it reduces the possibility of corrosion that would result from use of welded wire mesh (WWM) or other secondary steel reinforcement in the concrete. Additionally, we have gotten feedback that STRUX is easier to work with

from the contractor's perspective, since it eliminates the issues surrounding proper placement of WWM," said Robert McConnell, P.E., Vice President, Regional Manager of Carl Walker's Denver office.

Made from a unique polymer blend, STRUX 90/40 synthetic macro fibers are patented, high tenacity synthetic monofilaments, designed to replace steel fibers, welded wire mesh, light rebar and other secondary reinforcement used to control thermal and drying shrinkage cracking in concrete slab-on-ground applications.

When Jack B. Parson Companies, part of the nationwide network of Oldcastle manufacturing facilities, was selected to supply the concrete for the parking structure and loading docks, Rod Higley, Quality Control and Technical Sales Representative, turned to Grace Construction Products to develop a concrete mix incorporating STRUX.

"We were familiar with other types of fibers, but this was our first time using STRUX 90/40 macro fiber reinforcement. We didn't know what to expect," he says.

Higley worked on the mix design with a Grace Construction Products team. The team created a 611 lb. mix, consisting of 490 lb. cement and 120 lb. fly ash. STRUX 90/40 was added at a rate of 4.5 lbs. per cubic yard to provide the residual strength required for the project. The mix also incorporated Grace's ADVA® 100 Superplasticizer. This high range water-reducing admixture produces a low water/cement ratio and promotes high slump, extremely flowable concrete that achieves high strengths while providing superior workability.

Before proceeding with the project, the team did a 13 yd. test pour near the entrance. "It worked beautifully," says Higley.



"We ended up pouring 3400 yds of concrete. The concrete was 6" thick in the parking terrace, and 8"-10" thick in the loading docks to accommodate the heavy trucks. We found that STRUX 90/40 worked very well. STRUX 90/40 prevented cracking and really enhanced the performance of the concrete," says Higley.

Higley also commented on other benefits of using STRUX macro fibers. "STRUX comes in a concrete-ready bag, so it is easy to handle, and it disperses evenly throughout the concrete matrix. By using STRUX, we also saved on time and labor, because we could drive our trucks directly on grade to pour the concrete. In all, STRUX 90/40 passed the test with flying colors."

"We have gotten feedback that STRUX is easier to work with from the contractor's perspective, since it eliminates the issues surrounding proper placement of welded wire mesh."

Robert McConnell, P.E.
Carl Walker, Inc.

PROJECT CREDITS:

Owner: Wal-Mart
Concrete Supplier: Jack B. Parson Companies, Inc.
Engineer: Carl Walker, Inc.
Admixtures/Fibers: Grace Construction Products

Excellence In Concrete Award
ACI (Intermountain Chapter)

U.S. Patent Nos.: 6,569,525; 6,569,526; 6,758,897; 6,863,969

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