



Delivering Concrete Solutions

CASE STUDY

# Durable Concrete, Corrosion Protection, and Belt & Suspenders (Backup) Applications

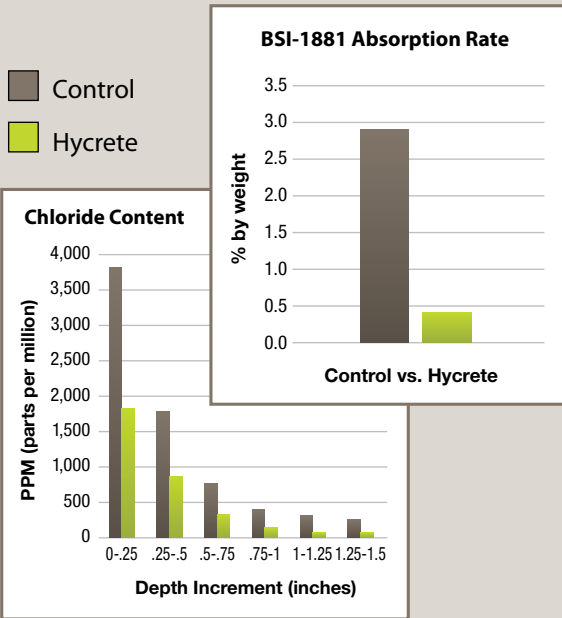
## Area 5 Wastewater Treatment Facility

Marathon, FL

In 2010, the City of Marathon built a wastewater treatment facility to serve the Florida Keys, which until recently operated only two wastewater treatment plants. The Area 5 expansion will increase plant capacity to 450,000 gallons per day.

Hycrete W500 was used to protect the concrete for several reasons:

- Resistance to chlorides and other chemical deterioration
- Reduced maintenance and lower life cycle costs
- Enhanced concrete durability
- Corrosion protection



## New Jersey DOT Bridge Deck, U.S. Route 130

East Windsor, NJ



In the spring of 2006, New Jersey DOT constructed a span of the bridge deck on Route 130 with the state's high-performance concrete mix, and another span with Hycrete admixture, to compare the effectiveness of the technologies in protecting bridge decks from corrosion.

After four years of service, the state cored the two decks and measured chloride penetration and absorption of the concrete. The Hycrete samples had significantly lower chloride levels, and at greater depths reduced chloride concentrations below levels typically required to initiate corrosion. In addition, the Hycrete samples were more than seven times better than the control in absorption, even after four years, showing the admixture had not washed out over time.



## 360 Residences

San Jose, CA

Built in 2008, 360 Residences is a 23 story, 497,000 ft<sup>2</sup>, luxury high-rise residential building in downtown San Jose, CA with 213 condos and 11,000 ft<sup>2</sup> of ground floor retail space.

A swimming pool is located on the fifth floor, which is above occupied space.

The architect, Solomon Cordwell Buenz, and general contractor, Bovis Lend Lease, decided to use Hycrete in the concrete as a backup to the waterproofing membrane to ensure the finished space below is protected from moisture migration.





### Connecticut DOT Highway Barriers, Interstate 84

Cheshire, CT

In 2003, Connecticut DOT constructed highway barriers with and without Hycrete admixture along Interstate 84 in Connecticut to test the effectiveness of Hycrete in protecting the concrete from corrosion and exposure to the elements. The same mix design was used in both cases and the Control and Hycrete barriers were alternated to account for potential differences in field conditions.

After eight years in service the barriers were tested and photographed. The Control barriers showed signs of spalling and exterior deterioration; the Hycrete barriers are intact.



### Cornell University – Weill Cornell Medical College

New York, NY

In 2010, Cornell University's Weill Cornell Medical College built a new facility in New York City to expand its research capabilities.

The facility includes four floors of laboratory space situated below-grade and in the water table and houses expensive lab equipment. Because of the sensitive nature of the research as well as the equipment it was critical that the structure be water-tight, as downtime or disruptions to building operations would jeopardize ongoing research and be costly to the university.

In addition to an external waterproofing membrane, Hycrete W502 was added to the concrete to reduce moisture transmissions through concrete and ensure a water-tight structure. The concrete is warranted to produce absorption below 1% and the owner has a long-term, durable solution.



### Maine DOT Ferry Terminal

Rockland, ME



In 2007 Maine DOT constructed a ferry terminal in Rockland, ME. The DOT's engineers were concerned about corrosion of the reinforcement in the concrete, especially in the tidal zones where oxygen and chlorides are abundant.

Maine DOT used Hycrete X1000 in the concrete mix to protect the concrete in the severe environment and maximize the durability of the concrete, reducing future costly maintenance requirements.