OPERATIONS • MARKET DEVELOPMENT • PRACTICE
Concrete PRODUCTS

AT THE ATLANTA HEARTSFIELD-JACKSON INTERNATIONAL AIRPORT . . .

High-early mix girders will carry heavy load

Lafarge North America's high-early-strength Type III cement has been specified for prestressed beams supporting a new runway bridge at the second busiest airport in the world. As part of an expansion project at Hartsfield-Jackson Atlanta International, the bridge and adjoining taxiway extending over an existing Interstate highway were designed to withstand the latest generation of airplanes: the Airbus A380-900 can weigh as much as 1.3 million pounds with braking forces of approximately 1 million pounds. Accordingly, the structure will be subjected to extremely high loads from the weight of million-pound forces due to jumbo jet landings and take-offs, plus aircraft braking.

Heath & Lineback Engineers, Inc., considered a number of alternatives before concluding that prestressed concrete beams offered the best solution. Although initial plans called for five to six feet of fill on top of the bridges, the final design eliminated all fill because the dead loads would have been massive.

Concrete was chosen rather than steel for the beams on account of a four-hour fire-rating requirement. To achieve this rating, steel beams would have necessitated false ceiling enclosures, whereas the prestressed beams require no additional fire protection, allowing more open space and better ventilation beneath the bridge.

The final design employs more than 760 prestressed beams, spanning a total width of approximately 1,100 feet. The beams are being fabricated by **Standard Concrete Products** in Atlanta using locally milled Lafarge Type III high-early-strength cement with a concrete design strength of 10,000 psi. Widely spec'ed in precast and prestressed concrete, the Type III powder increases productivity by virtue of its high early strength and accelerates production by allowing forms to be reused more quickly than with conventional cement, Lafarge representatives affirm.

Prestressed beams were fabricated for the Hartsfield-Jackson runway project at the Standard Concrete Products plant in Atlanta, using Lafarge Type III cement.

PHOTOS: Lafarge North America

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