



ACAA

Beneficial Use Case Study

UAB Football Operations Center

Coal Combustion Product Type

Fly Ash

Project Location

Birmingham, Alabama

Project Participants

HOK, Goodwyn, Mills & Cawood, Lithko Contracting, M.J. Harris Construction Services, Kirkpatrick Concrete

Project Completion Date

August 2017

Project Summary

The new \$22.5 million Football Operations Center at the University of Alabama at Birmingham includes a covered pavilion practice field, new athletic offices for the football staff, a weight room, and several therapy pools. The main building of the new athletic facility features a massive concrete foundation that required careful coordination to place.

Project Description

Owing to site-specific considerations, project engineers opted to underpin the main building with a huge foundation mat rather than the more common spread footings or caissons.

“For this location, they decided that either driving piles or drilling caissons wasn’t going to work,” said Kirkpatrick Sales Manager Rick Passey. “So they basically are pouring a 2000-cubic-yard foundation mat over a mud mat, and the whole thing is just going to provide the support for this building.”

Overnight placement of the concrete was carried out by Lithko Contracting and overseen by M.J. Harris Construction Services. Kirkpatrick Concrete delivered approximately 140 to 150 cubic yards per hour to the job site, which involved much of the company’s truck fleet.

Delivery challenges for the project centered primarily around the two large foundation pours—each of which was over a thousand cubic yards. Because of warm evening temperatures, careful monitoring was required to ensure the material steered clear of thermal cracking.

“When concrete is poured that thick, the hydration of the cement in the concrete can create temperatures that can actually crack the concrete,” Passey noted. “So we had to be very mindful of the mix that we used, the admixtures, [and] the temperature of the concrete.”

Laboratory specialists at Concrete South—which comprises ready-mix providers Kirkpatrick, Hodgson, and Walker Concrete—worked closely with the project’s contractors to develop a special mix design suitable for the mass concrete placement. In particular, fly ash was specified in the mix to help keep the material within temperature specifications.

“Fly ash is good for controlling the temperature of the concrete because there’s not quite as much cement in [there]. The total cementitious content of the concrete still allows for later strength gain,” Passey said.

“They really weren’t in a hurry for any higher or early concrete strengths, which is very difficult to achieve with mass concrete anyway,” he added. “So we made maximum use of our fly ash substitution in the concrete mixture.”



SOURCE: Concrete South



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