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FIRM TESTS MUSIC CITY CENTER



Geotechnical consultants TTL take samples of all the concrete poured during construction of the Music City Center to test for durability and adherence to specifications. More than 30,000 cubic yards of concrete have been poured, with an additional 80,000 estimated to complete the project. TTL samples concrete every 50-75 yards. SAMUEL M. SIMPKINS / THE TENNESSEAN

Contractor makes sure concrete fit for project

Material must meet rigorous criteria

By Anita Wadhvani
THE TENNESSEAN

While hundreds of workers labor downtown to erect the concrete frame for the new Music City Center convention center, one man in a South Nashville warehouse stands ready to tear pieces of it apart.

Rich Mote collects foot-long cylinders of solid concrete siphoned from the site. One at a time, in the dusty room he calls his lab, Mote inserts the concrete into a viselike machine capable of inflicting a half a million pounds of pressure.

Then he waits until he hears a loud crack — like the sound of a

baseball making perfect contact with a wooden bat.

"See how it gets busted up," said Mote, an expert in the way concrete crumbles, as he carefully unrolled the broken cylinder from a leather cover used to keep it intact while in the machine. "That's a good break."

Mote is a group leader with TTL, the Nashville geotechnical engineering company that has a \$15 million contract to do ongoing testing of the Music City Center site and its foundation.

The daily testing that goes on at its Antioch warehouse ensures that, for each aspect of the project, the concrete is mixed to contract specifications, which can vary significantly according to the function the concrete pro-

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An artist rendering shows how the \$585 million Music City Center will look upon completion. TVSDSIGN / TUCK-HINTON ARCHITECTS / MOODY-NOLAN

T Go to Tennessean.com/MCC to take a video tour of the Music City Center construction site and follow the progress on the convention center.

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Concrete put to test

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vides and the season, according to TTL Vice President and Geotechnical Group Leader Dan Terranova.

"Everyone thinks concrete is just a regular commodity," Mote said. "It's not. It's a chemical, and there's lots of chemistry involved. We make sure it's the right thickness, the right density."

Purposes differ

Some concrete is required to have a density that can support 7,000 pounds of weight per square inch. That includes certain beams in the convention center exhibition hall, for example, that have to bear the entire weight of the building.

Other concrete mixes serve different purposes.

One of the convention center's signature features is a perfectly smooth concrete showroom floor, uncovered by any carpet or other flooring. That's required to have a weight-bearing capacity of 4,000 pounds per square inch, Terranova said.

The concrete for the floor also is mixed for a winter climate, even though pouring began in Nashville's unseasonably warm October. That had to be tested as well, Terranova said.

Disaster prevention

The ongoing testing is critical to avoid a catastrophic building disaster or near-disaster, even years later.

In July, for example, the

elderly residents of a 15-story condominium in Sarasota, Fla., were given an hour to evacuate their homes after engineers found design flaws in the original 36-year-old concrete pour. Residents haven't been allowed to return yet.

Last year, in Houston, a newly built high-rise condominium had to be torn down shortly after it was constructed when it sunk a foot into the ground, a result of geotechnical flaws that Terranova said could have been avoided with proper testing.

TTL has been on-site at the \$585 million Music City Center, Nashville's most expensive public project, since before ground was broken in March.

The company sends sam-

plers, who take cylindrical molds of every concrete pour, which is being laid at a rate of 700 cubic yards per day. Company workers average five cylinder samples for every 50 to 75 yards of concrete poured, Terranova said.

Mote crushes about 40 or 50 samples a day, a total of about 2,300 tests from the site thus far. He crushes them three days, seven days and 28 days after the samples are collected. Until test day, they're stored in a humidity-controlled room in an Antioch warehouse designed to mimic downtown weather conditions. No significant repairs have been required at the actual convention center site.

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