

feature

Set Plans

At the new Smilow Cancer Hospital in New Haven, a switch to self consolidating concrete made all the difference.

By Jim Ross



There's nothing small about the new Smilow Cancer Hospital at Yale-New Haven Hospital. It features almost 500,000 square feet under roof. Hundreds of workers have dedicated themselves to the project. It is the largest health care construction undertaking ever in Connecticut history.

On a job that big, there's bound to be a lot of concrete. And that certainly was the case here: About 20,000 to 25,000 cubic yards of concrete was used. Scott Griffin of Turner Construction, the construction manager, said that sometimes 100 to 125 concrete workers – from form makers to finishers – were on the job site. At one

point, they poured concrete every day for five months, sometimes from 5 a.m. to 9 or 10 p.m.

But there was a twist along the way. Up until the fifth floor, the crews used a standard high-strength concrete mix, ranging from 5,000 or 6,000 psi to 8,000 psi. But they noticed lots of honeycombing and, with the amount of rebar in the forms, they were not able to get the vibrator to all areas between the forms. Representatives from Turner; the concrete contractor, Manafort Brothers, Inc.; and the concrete supplier, L. Suzio Concrete, analyzed the issue.

The solution: a switch to self consolidating concrete (SCC), which is a mixture “that

can be placed purely by means of its own weight, with little or no vibration,” according to the National Ready Mixed Concrete Association.

What is it?

What is Self Consolidating Concrete (SCC)? Here's an answer from the National Ready Mixed Concrete Association:

“SCC is defined as a concrete mixture that can be placed purely by means of its own weight, with little or no vibration. Adjustments to traditional mix designs and the use of superplasticizers creates flowing concrete that meets tough performance requirements. If needed, low dosages of viscosity modifier can be used to eliminate unwanted bleeding and segregation.”

Source: www.selfconsolidatingconcrete.com

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"Manafort went to Suzio and they designed a mix that would facilitate the projects and still be within the specifications," Griffin recalled. They sent the new plans to the structural engineer, who signed off.

"You could see a big difference," Griffin said. "We had really good success with it. It was a home run for what we were doing here. They did a great job."

Erik Melingtonis, who is Turner's superintendent for civil and concrete, said the forms must be tight to cut down on concrete escaping. He said he knew it would be difficult to vibrate the walls on this project. The switch to SCC was a huge help.

Lessons learned? "You need to be creative," Griffin said. "If we had stuck to the concrete mix that were designed for the project, we would have run into a ton of problems."

Ric Suzio, president of L. Suzio Concrete, also learned a lot. This was the first time the company had any direct experience with SCC. Officials had attended

Tale of the tape

The Smilow Cancer Hospital is part of the larger Yale-New Haven Hospital family. This new hospital will be the consolidated home for all of the hospital's cancer services, which are currently located in six different buildings.

The new cancer hospital is a partnership between Yale-New Haven Hospital, Yale School of Medicine and Yale Cancer Center.

Here are some facts and figures about the Smilow Cancer Hospital as listed on the hospital's fact sheet:

Size: 14 stories, 497,000 square feet

Estimated cost: \$467 million

Grand opening: Set for December 2009

It's a record: This is the largest healthcare construction project in Connecticut ever

Services: Inpatient and outpatient cancer services for adults and children

The big picture: This new building will attach to the hospital's main atrium as Yale-New Haven Hospital's North Pavilion and link with the other three pavilions. It also will attach to the Yale-New Haven Children's Hospital so that children can remain hospitalized with other pediatric patients and will connect with the Air Rights Garage by a covered skywalk.

Source: Yale-New Haven Hospital

SCC seminars put on by the National Ready Mixed Concrete Association. They relied on that information, as well as the expertise

of their add mixture companies, as they moved forward. Suzio said all went well, and he was pleased.

