

URBAN LABORATORY GREENING FORENSICS

WHO Whiting-Turner Contracting Company
WHAT District of Columbia Consolidated Forensic Laboratory
WHERE Washington, DC

By Erin Brereton

The curtain wall on the south elevation has louvers to allow more or less daylight into the building; inside, an efficient HVAC system with chilled beams and energy-recovery air-handling units were installed.

Whiting-Turner met unusual challenges in constructing the new forensic lab, including lead-lined panels required by the X-ray room.

38,473

Tons of contaminated soil hauled away from the Consolidated Forensic Laboratory's site at the beginning of the project

BACKSTORY

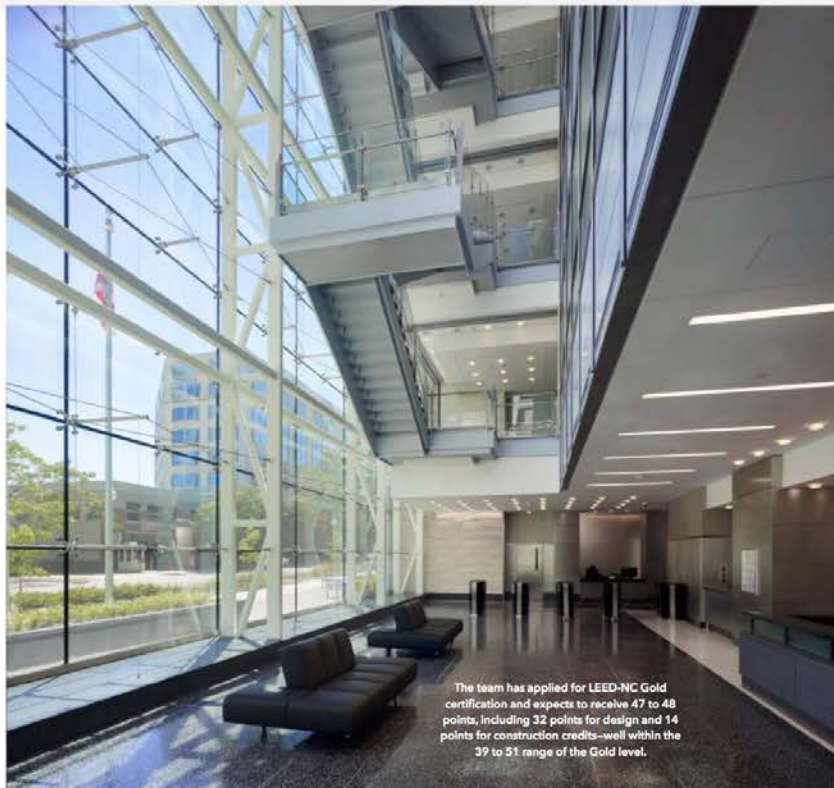
Washington, DC's Public Health Lab, Metro Transit Police, and the medical examiner's office were once under different roofs, and for the city to remedy this, it needed a brand new and very large building: a 350,000-square-foot structure that would offer all three offices access to cutting-edge scientific and forensic facilities. By creating the **District of Columbia Consolidated Forensic Laboratory** with energy-saving elements that could help reduce operational costs, the project was poised to offer a financial payoff, and housing DC's metro police, public health, and autopsy services in one location would also allow for increased collaboration during investigations.

The city chose a location in DC's Southwest district, just south of the National Mall, close to public transportation and the courthouse, where scientists and law enforcement officials make frequent trips. The site was also home to a two-story red brick building occupied by the First District Metropolitan Police Department.

Baltimore-headquartered **Whiting-Turner Contracting Company** partnered with architecture firm **HOK** and engineering company **Vanderweil** to help bring the project to life. "The goal of the project was to replace an old and inadequate facility and provide a modern, state-of-the-art facility for the city's first responders," says **Nancy Beavers**, Whiting-Turner's vice president of projects.

BEGINNING

After the First District police department relocated to a former school several blocks away, the two-story structure on the site was demolished. The Whiting-Turner team then focused on what had been beneath it. "We knew there was some petrol-based contaminants in the



The team has applied for LEED-NC Gold certification and expects to receive 47 to 48 points, including 32 points for design and 14 points for construction credits—all within the 39 to 51 range of the Gold level.

soil, but the quantity was unknown," Beavers says. Under the supervision of a third-party inspector, 38,473 tons of contaminated earth were identified, removed and taken to a specialty disposal location.

Soil quality wasn't the only challenge the project faced. Construction vehicles couldn't be lined up along Sixth Street because of a neighboring firehouse. To complete work before rush hour began, the team poured the concrete foundation at night, starting at 10 p.m. "That way no concrete trucks were stuck in traffic, we could get our scheduled pours in more [quickly], and there was no impact on traffic," Beavers says.

CHALLENGES

Because the building houses the city morgue, which necessitates a dedicated exhaust system and other unique elements, the plans included several special safety and design requirements. To minimize direct sunlight when investigators are examining crime scene evidence, the design specified that labs be placed on the side of the building with northern exposure and the offices face south for optimal sunlight and reduced electricity use. A special large elevator was added so investigators could bring vehicles that might have been involved in crimes into the building from

the street to the facility's lower level to be examined.

The morgue and biosafety level-3 area, which handles pathogens that need to be contained, were outfitted with a wall-panel system, which is designed for contamination-prone environments, from fiberglass-reinforced composite manufacturer **Arcoplast**. "The panels were chosen for their capability to provide a barrier system and withstand frequent washing," Beavers says. "They're easily wiped down and can withstand impact and chemicals."

Safety was a high priority during installation. Lead-lined fiberglass-reinforced composite panels were mounted



The autopsy bays are lined with windows, which is rare.

The building saves 2 million gallons of water annually by reusing storm water in the facility's cooling towers, and thanks to the green roof, there is zero storm-water runoff.



in the X-ray room primarily over the weekend when personnel weren't in the building. A consultant was hired by HOK to suggest proper room-shielding requirements because of the lead, and Whiting-Turner and its subcontractor set up protocols to ensure that materials were properly disposed of, exhaust systems were blocked off, and proper entrance and exit areas were used when panels were cut to fit certain wall areas. "We tried to keep it contained, and not have anyone else working in the area," Beavers says. "We quarantined it because we wanted to make sure there would be no airborne lead or anything of that nature." Whiting-Turner also discussed the protocols during a weekly safety meeting to remind on-site employees not to enter the enclosed area when work was in progress.

GREENING

Environmental-friendly low-VOC carpet tiles from flooring manufacturer **Mohawk Group's Lees Carpets** brand; caulking materials; and paint from **Sherwin Williams' low-VOC, low-odor Harmony** line were used during construction, along with four- and six-foot chilled beams in office, conference, and select lab areas.

The design also leveraged natural light to illuminate open office space. The south wall of the building features a lowered shading system from commercial-building product-provider **Colt Group**. The louver essentially works as a sunscreen system made of glass that modulates to provide different coverage based on weather conditions. The design won a Washington Building Congress Craftsmanship Award for ornamental

metal. Similarly, the autopsy area was outfitted with blackout shades for privacy. "But they have the ability to have a bright space, if they choose to," Beavers says. Occupancy sensors were added to reduce energy use, and similar sensors are used to control heating and air-conditioning in the building.

Storm-water runoff is repurposed to irrigate planting areas along the southern side of the building through a low-impact tree pit. "Even though we're in an urban setting, the landscape around the facility uses a lot of planting areas to add vegetation," Beavers says. "Now planting areas are collecting water instead of it flowing off."

After the building was completed in July 2012, security personnel were the first to move in. Other groups followed through October. DNA testing, firearm research, and fingerprinting can now be conducted in-house, along with potentially infectious autopsies—allowing DC's three different departments to work faster and more efficiently. "It's the first time all three entities have been brought together," Beavers said. "There is a work and a cost benefit—all three can share training, conference, and other rooms, and they can now conduct their own forensic work, instead of having to send it out to external labs for results." **gb&d**

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