



## Special Fort Lee Training Site for 2,000 Students Features Conventional and Pervious Concrete

By J. Keith Beazley,  
Director of Industry Services

A Fort Lee Multi-Mode Load Training site with actual Railcars and C-17 and C-130 aircraft has been installed for a 21st-century training facility for transportation troops. The training area with railcars and the actual aircraft is unique and offers management training for the U. S. Armed Services, as well as international military students, and will duplicate realistic air and rail-load training.

The C-17 fuselage, a 170 foot long and 50 foot high aircraft body, was moved from California to Virginia by way of the Panama Canal and the James River, traveling up the Appomattox River to Fort Lee. The journey was 5,800 miles long. The 50 ton fuselage is placed on a special concrete foundation and apron and looks as if just landed with the rear hatch door in the open position.

The C-17, a 97 foot long aircraft, was flown to Petersburg and transported by truck and placed on site. The trip included three major interstates in the area with the Virginia State police serving as escorts. The height and width of the load offered sometimes just a six inch clearance.

The move cost the Army about \$267,000. There was no charge for the planes themselves; the C-17 and the C-130 were an in-service transfer between the Air-Force and the Army. The C-130 cost \$11.9 million when it was built in 1962. By using a pre-existing aircraft that was taken out of service due to its age, it saved the taxpayers a considerable amount of money while giving transportation troops a more realistic training facility.



**Above: Workers begin placement of pervious concrete. At left: This C-17 fuselage was transported by way of the Panama Canal and James River.**



Concrete was chosen for the pavement and foundations of both aircraft due to the tremendous bearing weight and the large expanse needed for training materials. Special considerations were needed for a special steel cradle for the large C-17 and the weight of 50 tons. The neat and lean appearance of the concrete also enhances the training site with the natural landscaping and tree background.

In December, the Fort Lee Environmental Engineers and Base Engineers recommended a second entrance to the Multi-Mode Training Site for the easy looping and unloading of students and

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Boxley  
Roanoke, VA  
Phone: 540-777-7600  
lbullock@boxley.com

**BLUE RIDGE**

**Buddy Murtaugh Jr.**  
Chairman  
Rockingham Redi-Mix  
Harrisonburg, VA  
Phone: 540-433-9128  
buddy.murtaugh@conmatgroup.com

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Lafarge North America  
Baltimore, MD  
Phone: 804-201-1015  
allison.carrigan@lafarge-na.com

**HAMPTON ROADS**

**Bill Denison**  
Chairman  
Titan Virginia Ready-Mix  
Norfolk, VA  
Phone: 757-533-7164  
wdenison@titanamerica.com

**Lee Flemming**  
Secretary/Treasurer  
Lafarge North America  
Chesapeake, VA  
Phone: 757-647-9409  
lee.flemming@lafarge-na.com

**NORTHERN VIRGINIA**

**Joel Woerl**  
Chairman  
Titan Virginia Ready-Mix  
Norfolk, VA  
Phone: 703-234-1324  
jwoerl@titanamerica.com

**Sean Murnane**  
Secretary/Treasurer  
Virginia Concrete Company  
Spotsylvania, VA  
Phone: 703-855-4732  
murnanes@vmcmail.com

**RICHMOND/CENTRAL VIRGINIA**

**Wayne Bracey**  
Chairman  
Ready Mixed Concrete Co.  
Richmond, VA  
Phone: 804-355-7851  
Wayne.Bracey@rmcc.com

**Allison Carrigan**  
Secretary/Treasurer  
Lafarge North America  
Baltimore, MD  
Phone: 804-201-1015  
allison.carrigan@lafarge-na.com

**SOUTHWEST**

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Chair  
Chandler Concrete of Virginia, Inc.  
Roanoke, VA  
Phone: 540-345-3846  
frank.caldwell@chandlerconcrete.com

**George Kuhn**  
Secretary/Treasurer  
Marshall Concrete Products  
Christiansburg, VA  
Phone: 540-382-1734  
gkuhn@marshallconcrete.com



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**spring convention**  
**TWO THOUSAND AND ELEVEN**

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**THE GREENBRIAR RESORT**  
**SULPHUR SPRINGS, WEST VIRGINIA**

## Fort Lee (from page 1)

materials to be used at the training site. The loads would have to withstand 50,000 pounds and to withstand constant usage and a tight turning radius. The material selected for this special entrance was Pervious Concrete to test for strength, durability, sustainable development, and stormwater management.

The usage of Pervious Concrete for this special site would allow Fort Lee to have the opportunity to test the Pervious Concrete under this very extreme and demanding usage and set the standard for the usage in other sites within the Fort Lee Command. Alan Mills, Fort Lee Environmental Engineers, developed a team to design and construct this special section of Pervious Pavement.

The General Contractor, Centennial Contractors, developed and researched the requirements for Pervious Concrete in the section. Magruder Construction was contacted and Bruce Glaspey and Centennial held much discussion on construction, mix designs, cold weather concrete, and special implications of the handling of Pervious Concrete and Pavements. A local Ready-mixed Concrete Producer, TCS Materials, developed a special high strength mix design for the

### **"The special section of concrete was small in area, but very large in importance to the future of Fort Lee ..."**

project in conjunction with Centennial and Bruce Glaspey, Magruder.

The Pervious Concrete was to be placed when the unusual Arctic Clipper blew in from Canada the last of December. Magruder developed special cold-weather concrete methods for the placement and the project was held on schedule. Special attention was given to the temperature of the base for the material, temperature of the aggregate, temperature of the concrete, and the weather forecast and conditions. The ready mixed producer also applied special cold weather procedures for the placement in production and transporting the mix.

The concrete was covered immediately with plastic sheeting to protect form moisture loss and covered with thermal blankets to protect from freezing during the first three to seven days. Temperatures were taken and recorded

during the placement and the curing process. Ground temperature was 40 degrees before placement, concrete at 65 degrees at placement, and 80 degree the morning after the placement was covered in thermal blankets.

The attention given by Pat Pearce, TCS, producer of the concrete, the finishing of the concrete by Magruder, Bruce Glaspey, and the attention to planning and inspection by the General Contractor Centennial, Tyler Sorensen, Field Engineer, made this placement a very successful operation during extreme conditions. The Fort Lee Environmental Engineers were very pleased with the overall operation of this placement.

The special section of concrete was small in area but very large in importance to the future of Fort Lee pavements and the demonstration of the very high strengths Pervious Concrete can achieve and perform. The durability of Pervious Concrete and the characteristics of sustainability and stormwater management make this product the one to be considered for all future projects. Our industry is very pleased to have a part in this world-class training facility and for the training of members of the U.S. Armed Forces. 🚚

## Research Examines Life-Cycle of Concrete Roads, Structures

The Massachusetts Institute of Technology (MIT) has released preliminary research findings that will help set a new standard in life-cycle assessment (LCA) modeling. The studies, which are part of an ongoing research initiative at the MIT Concrete Sustainability Hub, will quantify the cradle-to-grave environmental costs of paving and building materials, and will ultimately result in the most comprehensive LCA model produced to-date.

The study combines data on the full range of environmental costs – construction, maintenance, reconstruction, user, direct, and indirect – with a timeframe that reflects the real world life of pavements and building materials. The research examines a timeframe of 50 years for pavements and 75 years for buildings and provides assessments that align with structures' actual emission totals over the course of structures' real world lifetimes.

"This study is unprecedented in that this LCA focuses on the 'use phase' of materials – the period between construction and demolition that makes up the actual in-use life of the road



Massachusetts  
Institute of  
Technology

or building," Brian McCarthy, Portland Cement Association (PCA) CEO and president said. "The research represents the best available data on building and paving materials from

one of the world's preeminent institutions of higher learning."

Initial findings in the Buildings LCA have shown that more than 90 percent of the life-cycle carbon emissions from residential buildings are due to the use or operational phase. The study also showed that in residential structures, the use of insulating concrete forms instead of code compliant wood-framed construction can produce operational energy savings of 20 percent or more, with the highest energy savings occurring in colder climates.

The Highway Pavement LCA showed that for high-volume roads, the use phase of the lifecycle can account for up to 85 percent of total carbon emissions.

MIT is set to release a follow-up study in 2011 that will examine the economic costs to provide the most comprehensive analysis of the total costs of building and paving materials. 🚚



## VRMCA Helps West Virginia Habitat Project

By Bob Nablo,  
Director of Industry Services

VRMCA producer members who have operations close to neighboring states occasionally deliver concrete to projects in those states. Likewise, the three VRMCA field consultants, who normally operate only within the Commonwealth, are sometimes asked to give assistance outside Virginia. This was recently the case when Donn Thompson, Director of Low-Rise Buildings for PCA, asked VRMCA for help in evaluating an ICF Habitat For Humanity project in Franklin, WV.

The project, River Bend Gardens, was conceived as a five-unit, fifteen apartment, complex for Almost Heaven Habitat in Franklin. Submitted two years ago for the PCA Progressive Incentive Program, the first six apartments – four of which are occupied – have been completed. The apartments, while varying in size, used about 200 cu. yds.

of concrete each when all factors are added together. Superior Concrete of Harrisonburg, VA supplied the concrete for the project, which included two-story ICF exterior walls, colored concrete floors, wrap-around concrete porches, concrete drive areas and pervious concrete parking. Flowable fill was also used to level the foundation area for the fifth building.

The units are not large, with each end unit offering about 660 sq. ft. of interior space and each middle unit with 1400 sq. ft., but they are nicely constructed with radiant heat in the floors and



**Concrete for the drive area and colored concrete floors was supplied by Superior Concrete of Harrisonburg.**



skylight lighting in the upper rooms. Construction Superintendent Charlie Setchell of Almost Heaven Habitat says that the organization is very pleased with the results of the project and very much appreciates the participation of the PCA Incentive Program. 🚚

## Southwest Council Attends Green Living Expo

Roanoke recently hosted the 11th Annual Green Living and Energy Expo sponsored by the Association of Energy Conservation Professionals. The Southwest Concrete Advisory Council sponsored the VRMCA booth during the event, and Roanoke Cement provided their pervious concrete display for use in the booth. This regional event has grown substantially over the years, and this year 82 companies, associations and municipalities were represented. Dignitaries included Maureen Matsen, Senior Energy Advisor to Gov. Bob McDonnell, who made opening remarks for the event. Roanoke Mayor David Bowers also attended.

A significant number of design professionals and municipal officials stopped to view the booth and ask questions, as



**Robert Marek explains a pervious concrete display to students.**

did many local homeowners. On Friday the exhibition hall was filled with elementary and middle school classes as teachers brought their students in to see the energy conservation exhibits. Various presentations were also offered throughout the two day event, with 10 companies giving short seminars.

The Green Living Expo has received the Virginia Green certification as a Green Event. The mission of AECP is to provide, promote and advocate energy

conservation and the expo is their marquee event in the Roanoke Valley. They also offer the Weatherization Assistance Program, which is the oldest, largest and most comprehensive residential energy saving program in the country. 🚚

## Northern Virginia Course Focuses on the Practicality of Testing Methods for Pervious Concrete



**Left to right: Students sample the freshly-mixed pervious concrete. Sean Murnane & Tom Taylor apply plumbers putty to the bottom edge of the infiltration ring. Water is poured into the ring to test the infiltration rate. Tom uses a proctor hammer to consolidate the mixture in a standard measure to test the density and void content of the pervious concrete.**

**By Hessam Nabavi,  
Director of Industry Services**

"I just completed a parking lot in Montgomery County Maryland. The testing company had just attended the pervious concrete testing process that was sponsored by VRMCA in Northern Virginia. They came prepared and confident about the testing that was to take place. All tests were within specification with no rejected loads", says veteran concrete installer, Matthew Cockerham, Project Manager with North Star Foundations, Inc.

As reported in September of this year, VRMCA sponsored a course on the testing process of pervious concrete. It was specifically designed to train testing lab technicians, geo-technical engineers and producers' quality control personnel. Due to popular demand and a tremendous response to the importance of this topic, on November 16th, VRMCA sponsored a second course on the pervious concrete testing process with a more in-depth look at the practical side of the testing methods.

VRMCA invited Charles Mitchell, P.E. a Principal with Specialized Engineering in Frederick, MD. Mitchell has been in the forefront of ASTM's pursuit of testing methods for pervious concrete. He

was involved in studies that lead to the development of *ASTM C1688 (Density and Void Content of Freshly Mixed Pervious Concrete)* and is currently the task chair for the ASTM effort to provide a test method for compressive strength of pervious concrete.

In this two hour class, Mitchell and his assistant Tom Taylor, Director of Laboratory with Specialized Engineering, demonstrated a series of tests based on *ASTM C1701/C1701M-09, Standard Test Method for Infiltration Rate of in-place Pervious Concrete* and *ASTM C1688/C1688M-08, Standard Test Method for Density and Void Content of Freshly Mixed Pervious Concrete*. Mitchell mentioned that ASTM is presently working on developing two additional test methods.

"The presenters were very knowledgeable and very good at communicating. Questions were answered thoroughly and the demonstrations were very clear. It was also interesting hearing about some of the test methods under consideration. I think the program was excellent and the material relevant and valuable to anyone responsible for pervious concrete quality assurance." said Jim Morris, Technical Services Manager and Safety Coordinator with Rowe Materials.

Michael Robinson with Carolina Stalite describes his experience with this class, "I have attended several presentations about pervious concrete through the CRMCA, VRMCA, MRMCA, and the NRMCA. They were all power-point presentations. They were impressive, and made their point well. But, they did not provide a first-person experience. And there's no substitute for being there to observe it in person and being able to ask questions as they come to mind as you observe the process of placing / testing the pervious concrete. I know you appreciate my point or you wouldn't have gone to the trouble of arranging these programs. I am a lightweight aggregate producer and I do not get many opportunities (read-none, until these programs) to experience the placement and testing of pervious concrete first-hand. (Although I am aware that Stalite has been involved in at least one LW pervious demo project.) So, I really appreciate your providing this opportunity for members of the VRMCA NVCAC. Thanks!"

Special thanks to Charles Mitchell and Tom Taylor for sharing their knowledge and expertise with our audience and Sean Murnane, Virginia Concrete Quality Control Manager for all his assistance. 🚧



## Retaliation Claims are on the Rise

By John G. Kruchko  
and Paul M. Lusky

For employers, the retaliation clause in Title VII of the Civil Rights Act of 1964 ("Title VII") is perhaps the most frustrating aspect of the protections afforded employees in that statute. The retaliation clause makes it unlawful for an employer to discriminate or retaliate against an employee who has opposed a practice made unlawful under Title VII or because the employee has filed a claim or charge under Title VII. Thus, no matter how frivolous the initial claim brought by an employee claiming injury under Title VII may be, the employer is forced to be extremely cautious in taking subsequent disciplinary action against the employee for fear of being accused of retaliation. In other words, the employee who has filed a previous claim takes on a "protected status" which may make the employer second guess any future decision to discharge, layoff or transfer the employee.

In recent years, the courts have given broader application to the retaliation clause in Title VII by redefining the circumstances under which an individual might reasonably claim retaliation. The United States Supreme Court has been at the forefront of the expansion in protections against retaliation. For example, in 2006, the Court adopted an employee-friendly definition of the type of retaliation that is prohibited by Title VII. In *Burlington Northern & Santa Fe Railway Company v. White*, the Court held that "the anti-retaliation provision, unlike the [underlying discrimination] provision, is not limited to discriminatory actions that affect the terms and conditions of employment." Rather, any "materially adverse" employment action that "might have dissuaded a reasonable worker" from complaining about discrimination will count as prohibited retaliation.

Depending on the context, retaliation may now be found in an unfavorable annual evaluation, an unwelcome schedule change, or other employer actions that fall well short of job loss. For example, in the *Burlington Northern & Santa Fe Railway Company* case, the Court found



**"No matter how frivolous the initial claim brought by an employee claiming injury under Title VII may be, the employer is forced to be extremely cautious in taking subsequent disciplinary action against the employee for fear of being accused of retaliation."**

retaliation because the employer changed the plaintiff's job assignment after she complained that her immediate supervisor was making inappropriate remarks. She was taken off a job driving a forklift even though she had experience in operating the forklift.

This adoption of a broader standard for retaliation under Title VII has significance for lawsuits brought under similar state statutes or other federal statutes that have retaliation protections. For example, the Americans with Disabilities Act ("ADA"), the Age Discrimination in Employment Act ("ADEA") and the Family and Medical Leave Act ("FMLA") all provide protection against retaliation. It is very common for plaintiffs to sue for discrimination and retaliation in one civil action.

There has also been a surge in the number of complaints of retaliation filed

with the Equal Employment Opportunity Commission ("EEOC"). Claims that include allegations of retaliation rose 23% in the year ending Sept. 30, 2008, to 32,690 -- more than a third of all claims filed with the agency. State anti-discrimination agencies have seen a similar increase in retaliation charges.

In an even more recent development, so-called "third-party" retaliation claims are also on the increase, again aided by favorable Supreme Court decisions. In 2009, in *Crawford v. Metropolitan Government of Nashville*, the Court held that the anti-retaliation protections in Title VII extend to an employee who speaks out about discrimination, not on her own initiative, but when answering questions during an employer's internal investigation of a co-worker's sexual harassment claim. The Court said: "[N]othing in the statute requires a freakish rule protecting

an employee who reports discrimination on her own initiative but not [protecting] one who reports the same discrimination in the same words when asked a question [by the employer].”

More recently, on December 7, 2010, the Supreme Court heard oral argument in a case that could further broaden the scope of federal protection against retaliation. In *Thompson v. North American Stainless*, an employee is suing his employer for third-party retaliation. The plaintiff, Eric Thompson, became engaged to marry another employee who had filed a sexual discrimination lawsuit against North American Stainless through the EEOC. Three weeks after the company was notified of the lawsuit, it fired Thompson. Following his termination, Thompson filed his own lawsuit against the company claiming that he was fired in retaliation for his fiancée’s lawsuit.

During the litigation of Mr. Thompson’s claim, the company argued that Thompson could not sue for retaliation because federal law does not prohibit firing an employee for the protected activity of his fiancée. The U.S. District Court for the Eastern District of Kentucky and the U.S. Court of Appeals for the Sixth Circuit agreed with the company, finding that Thompson had no legal grounds on which to sue. Thompson appealed to the U.S. Supreme Court.

The case could have significant legal implications for employers. If Thompson wins, employees who are fired could argue they were terminated because of their relationship with another employee who is claiming discrimination against the employer. During oral argument, the United States attorney representing Thompson argued that the relationship between Thompson and his fiancée was strong enough to warrant a claim of retaliation. The attorney said, “[T]

he relationship is important in this case is because it tends to render plausible the argument that there [is] a causal connection between the adverse action visited on Thompson [and his fiancée’s discrimination claim].”

Fortunately, the Justices seemed reluctant to allow this line of reasoning, perhaps because they feared it would put employers in an impossible position whenever they fired someone. Noting the unreasonableness of opening up a claim of retaliation for every kind of employee relationship, Justice Alito said, “Does the employer have to keep a journal on the intimate or casual relationships between all of its employees, so that it knows what it’s opening itself up to when it wants to take an action against someone?”

The Court also debated what kind of relationships would be sufficient to allow a retaliation claim based simply on a relationship with another employee - a spouse? A fiancée? A friend? A pal? Again, Judge Alito asked, “Can you help provide where the clear line is? Does it include someone who just has lunch in the cafeteria every day with the person who engaged in the protected conduct? Someone who once dated the person who engaged in the protected conduct?”

Employers can only hope that Judge Alito’s apparent hostility to the employee’s third-party retaliation claim in the *Thompson v. North American Stainless* case will become the majority opinion for the Court’s decision. Retaliation complaints are the fastest growing category of discrimination complaints, both at the federal and state level. Employers don’t need another decision from the Supreme Court that expands the protections against retaliation to unworkable boundaries. 🚧

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John G. Kruchko is a Partner with the Management Labor & Employment Law Firm of Kruchko & Fries in McLean, Virginia; Paul M. Lusky is a Partner with the Firm. For more information, please contact Mr. Kruchko at 703/734-0554 or JKruchko@KruchkoandFries.com, or Paul Lusky at 410/321-7310 or PLusky@KruchkoandFries.com. This article is published for general information purposes, and does not constitute legal advice.

## On the Horizon Calendar of Upcoming Events

# 2011

### JANUARY 10-12, 2011

#### ACI Concrete Field Testing Seminar and Examination\*

H.L. Pearson National Guard Armory  
692 Waterloo Road  
Warrenton, VA

\*PRE-REGISTRATION REQUIRED

### JANUARY 11, 2011

#### NVCAC Pervious Presentation

1 PM - 2:30 PM

Presentation for Loudon County engineers, architects and the Department of Transportation  
City of Leesburg, VA

#### HRCAC Business Meeting and Installation of 2011 Officers

11:30 AM - 1 PM

Holiday Inn Executive Center  
Virginia Beach, Virginia

### JANUARY 13, 2011

#### NVCAC Business Meeting

Goal setting for 2011

7:30 AM - 10:30 AM

Manassas, VA

### JANUARY 18-20, 2011

#### ACI Concrete Field Testing Seminar and Examination\*

Chandler Concrete  
614 Norfolk Avenue, SW  
Roanoke, VA

\*PRE-REGISTRATION REQUIRED

Please visit the online calendar for an up-to-date list of events.

[www.VRMCA.com/calendar](http://www.VRMCA.com/calendar)



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