

A CUSTOMER'S SUCCESS STORY

Volvo Construction Equipment



40 YEARS OF TEACHING THE ABCs OF ASPHALT PAVING

There is a slight parallelism between the state of our country today and in 1956, when President Dwight D. Eisenhower signed landmark legislation intended to shore up the nation's defense and strengthen business and trade. The Federal-Aid Highway Act of 1956, also referred to as the National Interstate and Defense Highways Act, provided \$25 billion (almost \$200 billion today) to construct the Interstate Highway System. Faced with a looming recession and a 5 percent unemployment rate, Eisenhower hoped the Act would help kick-start the economy. It did, and succeeded in driving forward a key aspect in the nation's construction industry — asphalt.

By the mid-1960s, highway construction and the asphalt industry gained tremendous momentum. Blaw-Knox, a leading road-building equipment manufacturer, saw a need to train contractors and road crews working on road construction projects. Company-sponsored factory training provided not only instruction on the maintenance and operation of Blaw-Knox equipment, but also best practices and knowledge for the betterment of the asphalt industry. In the 1970s, Blaw-Knox established a formal training center in Mattoon, Ill., where courses in operations and maintenance and mechanical training were available for



Volvo Construction Equipment acquired Road Institute in 2007. Two training facilities are located in Chambersburg, Pa., and Phoenix, Ariz.

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industrywide participation. In 1997, the training facility officially became Road Institute. At that time sales training was added to include hands-on operation and application training for the salesmen. This was known as "Boot Camp" training.

"For 40 years, Road Institute has been recognized throughout North America as the premier educator for asphalt industry professionals," said Steve Blackwelder, director of global training for Road Institute, which is now operated by Volvo Construction Equipment.

The training philosophy remains comprehensive: to not only teach participants how to operate the equipment, but to also educate them on best paving practices and to recognize common problems that occur on a paving job and how to correct those problems. Courses at Road Institute are structured to include both classroom instruction and hands-on learning applications for asphalt pavers and compactors. Instructors are asphalt

industry veterans bringing nearly 100 years of experience to each class. Classes are held in Chambersburg, Pa., and in Phoenix, Ariz.

"Many of the attendees have been around pavers for a long time," explains Peter Fleming, paving instructor at Road Institute. "They learn on the job and sometimes only learn the very basics. It's our job to give them the complete picture."

Fleming began his career in the British Army where he learned to operate Blaw-Knox pavers and joined Blaw-Knox in 1987 as a service training manager. Wayne Tomlinson, compaction instructor, has nearly 20 years of experience with construction equipment service and training.

According to Fleming and Tomlinson, a majority of attendees at Road Institute are paving crew personnel and supervisors. However, because of the commitment and reputation Road Institute has acquired over the years, it has attracted other professionals,

such as state highway administrators and asphalt production professionals. One such attendee, John Morgan, a technical sales representative for MeadWestvaco, enrolled in Road Institute to expand his current knowledge of asphalt paving.

MeadWestvaco (MWV) produces a warm-mix asphalt additive called Evotherm®. Morgan represents Evotherm to asphalt producers as well as contractors and DOT administrators. In his business, Morgan has a vested interest in understanding paving operations and best practices.

"Over the years, I have acquired a background in asphalt and road construction through my professional interaction with contractors and state DOT administrators," said Morgan. "But to be honest, there is no substitute for hands-on training.

"At Road Institute, I had the opportunity to crawl around and get inside the equipment. I listened to the instructors

Road Institute paving instructor Peter Fleming shows a class the engine of a PF6110 tracked paver.



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talk about the operation of the equipment, proper maintenance and what happens when it isn't properly maintained."

Morgan attended a three-day course on asphalt paver and compactor operations and maintenance. The Road Institute team packs information and training into the comprehensive course. The first day is spent in a classroom learning basic equipment operation and paving and compaction principles.

The objective of this particular course is to introduce standard operation of paving equipment and teach best practices to lay a superior mat. Attendees learn the difference between a wheeled and tracked paver and which is best on certain jobs. They learn how screeds smooth and initially compact the material, and they are introduced to asphalt compactors and the various rolling patterns for compaction.

"We talk about theory," said Tomlinson. "We look at how the machines work, how the screed smooths and seals the asphalt material, what amplitude and frequency are in compaction, and other such topics."

Additionally, instruction is provided on various asphalt compositions and differences between Superpave, stone matrix asphalt, warm mix versus hot mix, and reclaimed asphalt. Tomlinson explains that they also discuss compaction density requirements, the importance of the sub-base, and how slight changes in moisture affect placement and compaction.

As important as all that information is, the most fundamental portion of the classroom instruction is best paving and compaction practices. For instance, Fleming will instruct on the factors that affect the screed and how to control those factors to achieve the perfect mat, and Tomlinson will discuss consistency in the rolling patterns and maintaining the correct rolling speed for proper impact spacing.

The next two days the class receives in-depth, hands-on training outdoors. Days two and three are conducted outside in a large flat area where attendees will put into practice the



Participants receive hands-on training on machine operations and best practices of asphalt paving.

classroom lessons to enable them to operate the equipment correctly and efficiently. Day two begins with up-close familiarization with the equipment. Tomlinson and Fleming take the class around each piece of equipment they will be operating to discuss proper maintenance procedures and point out the major control systems. Important daily and weekly checks of the pavers and compactors are reviewed in detail by the paving crew.

Next up is the heart of the course — operating the equipment and applying what was learned in the classroom the previous day to an actual paving job.

"The purpose of these two days is to give everyone good practice," Fleming said.

And practice is what they do. The Road Institute team takes each class through an actual paving operation using a mix of damp sand and gravel as a substitute for HMA.

"We find sand and gravel closely mimics hot mix asphalt and you can see any mistakes made in the mat during the process pretty well," said Tomlinson.

Fleming instructs the paving portion of the day and Tomlinson takes over for the compaction. A Volvo PF6110 tracked paver is used with an Omni 318 screed. The class paves a mat 50 yards long and 12 feet wide. The students run the paver

and the screed using manual controls as instructors observe. After a few yards, the group stops to assess the operation and mat.

"We will stop several times along the mat and discuss problems that we're seeing in the mat," explains Fleming. "We talk about what is causing problems and what needs to be adjusted. We make those adjustments and move along. So by the end of the run, the mat should look pretty good."

They also discuss the various roles on a paving crew.

"We talk about the crew and different roles on a paving team," said Fleming. "From the paver operator, screed operator, truck driver and the rest of the crew."

After the first mat is laid down, Tomlinson takes over and the group focuses on compaction, using a Volvo DD38HF double drum compactor.

"I use the smaller model because it reacts quickly to the operator's control and will exaggerate any mistakes made," said Tomlinson.

Also on-site is a Volvo DD118HFA highway class asphalt compactor. Although attendees do not get a chance to operate the large compactor on the mat, Pat Ott, another instructor, gives a walk-around of

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the machine and teaches operational and maintenance procedures and allows them to operate the compactor off to the side.

Each attendee gets a turn on the DD38HF compactor to roll and compact the freshly laid sand mat. Tomlinson instructs the class on the various rolling patterns they learned the day before, such as the five-pass pattern or a side-by-side pattern.

After the first lesson in compaction, it's time to lay a second mat and learn joint matching, by laying the second length of the mat next to the first. Here the fundamentals of making and looting a joint are discussed.

At an appropriate time on this second run Fleming discusses material management and methods of correctly handling the controls to ensure that the material passes through

“We have set up along one side of the training area a preset wire guideline, which has been leveled by a laser. As the paver moves along, its electronic grade sensor reads the wire and the automatic controls keep the screed at the desired grade and slope. The screed operator needs to watch and make slight adjustments only when necessary.”

The automatic grade control is also known as a “joint matcher” because when laying a second mat it senses the previously laid mat as its reference and keeps the screed parallel to it. The automatic slope control allows the operator to set, adjust or maintain the slope across the mat.

If it is a hot joint, the new mat is laid to the same depth of the first mat. If it's a cold joint the second mat needs to be approximately 25 percent deeper, and it is up to the roller operator to compact the joints. Tomlinson instructs on rolling the joint, meaning to compact by rolling it like an unsupported edge and pinch it from either the hot side or the cold side of the joint, whichever is specified.

Although, a safety statement is made during the class opening on the first day, the final session is focused on jobsite safety. Fleming and Tomlinson provide photos of actual jobsites that highlight safety issues.

“We want them to leave with safety in the forefront of their minds,” Fleming said.

With 16 courses offered over a 10-month period each year, Road Institute sees many repeat attendees. Contractors will send new employees, as well as paving veterans for refresher training.

“In almost every class there will be an ‘a-ha’ moment for someone,” said Tomlinson.

John Morgan definitely had many “a-ha” moments during the week he attended.

“As a salesperson, I need to engage a wide range of people and the more information I have, the more valuable I am to my customer,” explains Morgan. “I really learned a lot at Road Institute, and I've worked in the industry my entire career.”



Participants use a Volvo DD38HF to learn various rolling patterns.

As each student takes his turn on the compactor, the rest of the class observes and has in hand a scorecard. For each turn, the remaining students observe and give a letter grade, A through F, on how well the operator did.

“When we have a paving crew, they will generally get all As,” explains Tomlinson. “If someone has never run a compactor before, it can be tough to operate for the first time.”

the paver and under the screed without destruction of its homogeneous blend.

On the third day, Fleming introduces the attendees to the automatic grade and slope controls on the paver.

“Day three is very similar to the previous day; however, we use the electronic controls to assist us in our leveling,” explains Fleming.