

PAVING NEWS

A CATERPILLAR PUBLICATION SERVING THE GLOBAL PAVING INDUSTRY

Issue 1 2017

SOLID PERFORMANCE

MILLING MACHINE PRODUCTIVITY
EXCEEDS EXPECTATIONS



5,000 TONS, 1 SHIFT

4-DAY JOB KNOCKED
OUT OVERNIGHT

Louisiana 

TECHNOLOGY



ACHIEVING OPTIMAL SMOOTHNESS

CONTINUOUS PAVING PROVIDES BEST RIDE QUALITY

Meeting smoothness specifications can help your company earn a bonus or avoid a penalty. Avoiding unnecessary paver stops is one of the best ways to lay down smooth mats.

Prior to paving, the superintendent or supervisor should calculate the paving speed that will minimize paver stops. There are formulas for calculating speed based on hourly tonnage, weight of material, paving depth and paving width. Software such as the Paving Production Calculator can simplify the process of calculating paving speeds.

Paver stops create roughness in two ways. One is by creating a temperature differential between the bituminous layer confined by the screed and the portion of the layer that is directly behind the screed in the area where the initial-phase compactor can't reach. Depending on the ambient temperature and the thickness of the layer, the material may lose heat rather quickly. When the temperature difference

exceeds 59° F (15° C), there is likely to be a compaction differential.

PaveCool software can be used to determine how long it will take for a given layer thickness to lose 59° F (15° C) under specific ambient conditions. PaveCool is available as a download from the Minnesota Department of Transportation.

The second way that paver stops may contribute to roughness is by creating a screed settlement mark in the surface layer. The initial-phase roller may erase the mark, but roughness is still a concern.

Cat® pavers are equipped with a screed counterbalance system to prevent settlement when laying tender mixes. Some Cat pavers also feature a screed lower-lock system to prevent settlement marks. Consult the Operation and Maintenance Manual for instructions about the operation of the screed counterbalance and screed lower-lock system.

Paving experts at our dealership are always available to provide assistance. In addition, tips on improving smoothness can be found in the Caterpillar Paving Products book, *Guide to Asphalt Paving*. The book can be purchased at participating Cat dealers or at [Amazon.com](https://www.amazon.com).



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SOLID PERFORMANCE



MILLING MACHINE 50 PERCENT MORE PRODUCTIVE THAN PREVIOUS MILLS

Road construction is all about precision work and meeting deadlines. Not only must jobs meet tight specifications, they must also be completed on time. Tri-City Blacktop, Inc. accomplished both of these goals at a milling job for the city of Bettendorf, Iowa.

A Tri-City Blacktop crew milled concrete at a depth of 2½-inches for the 0.8-mile Middle Road resurfacing. Milling was completed in four days. Cleaning and prepping the milled surface took another two days, and paving was finished in four days. In 10 days, one of the city's worst streets became one of the smoothest.

A Cat® PM622 Cold Planer helped the crew mill 5,600 square yards daily. With a milling width of 88 inches, the PM622 is 50 percent more productive than previous mills the crew operated, according to Luke Carpenter, field superintendent.

"We're able to make a wider cut, for one thing," Carpenter said. "We had high expectations for the PM622 on this job, and it exceeded them. We had a 4,000 square yardage goal every day, and we exceeded that every day that we milled."

With an operating weight of 74,580 pounds and rated power of 630 hp, the PM622 easily milled the 2½-inch concrete layer. "We can mill with such precision using this machine. It doesn't chatter; the tracks don't jump. It handles tough jobs like this better than any machine that we've seen," Carpenter said.

The Tri-City Blacktop crew milled within 1/8-inch of the specified depth. "The city doesn't want us to get into the rebar that's in the concrete, so they didn't want us going any deeper," Carpenter said. "We didn't hit any rebar. It's been a very smooth job."

Meeting the milling specifications was also critical to keeping the existing hand-framed curbs intact. The city didn't want the road height changed, which would have required curb replacement. Tri-City Blacktop met the specs, and new curbs weren't necessary.

Perfect Every Time

The PM622's technology helped the crew complete milling quickly. "True zero for matching is stored in the grade control system. There's never





“ True zero for matching is stored in the grade control system. There’s never any second guessing. Once you get the machine set up, it’s always set up. ”

LUKE CARPENTER
FIELD SUPERINTENDENT
TRI-CITY BLACKTOP, INC.



any second guessing. Once set up, the machine is always set up,” Carpenter said. “You can set down at two and a half inches and taper that out 30 feet to two inches and not have to do it manually. It will do a perfect taper every time.”

A highly skilled crew is necessary to mill at the rate that Tri-City Blacktop did on the Middle Road resurfacing project. “We’ve had this crew together for 20-plus years. They do a great job,” Carpenter said.

Sometimes you catch a break, too. Topography worked in favor of Tri-City Blacktop. “This job has some hills, and we’re using them to our advantage. Downhill, with the gravity, is helping us move a little quicker through the concrete,” Carpenter said.

Tri-City Blacktop successfully met a 0.25-inch over 10 feet bump specification. The crew used a Cat AP655F Asphalt Paver to place three lifts (1-inch sand level mix for crack fill,





2-inch intermediate lift, and a 1.25-inch surface lift). A total of approximately 6,000 tons of material was placed. The asphalt was produced at a Tri-City Blacktop plant three miles from the jobsite.

The PM622's controls are similar to those on Cat pavers. "We're all familiar with the pavers. Caterpillar did a really good job tying the two together. You can jump from one to the other without having any doubt about what you're doing. Grade control is laid out the same on both," Carpenter said.

And when the Tri-City Blacktop crew was finished with the job, a rough section of Middle Road provided smooth driving—on time and with all specifications met. ■



ADDITIONAL SERVICES AID **GROWTH**

Tri-City Blacktop, Inc., Bettendorf, Iowa, added asphalt milling to the services the company provides in 2010. This not only added another revenue stream, the work also enables asphalt recycling, reducing the need for virgin aggregates and asphalt binder. This can reduce the environmental impact by up to 30 percent on a project.

Making as small a footprint in the environment as possible is a priority at Tri-City Blacktop. The company owns two full-size, state-of-the-art asphalt and concrete recycling centers that produce 200,000 tons of recycled material annually for use on other jobs.

Tri-City Blacktop, Inc. was founded in 1969 by Larry Carpenter and remains under family ownership today. The company does new construction, overlays, and a variety of other types of asphalt work. "Basically, we do anything from the ground up, except for general contracting," said Luke Carpenter, field superintendent. "Seventy percent of our work is milling and paving."

Paving work is primarily within a 60-mile radius of the Quad Cities (Davenport and Bettendorf in Iowa, and Rock Island and Moline in Illinois). The milling crew will work as far as 200 miles from home.

Tri-City Blacktop has grown to approximately 70 employees. The company runs one asphalt paving crew, a milling crew, two base crews, the recycling facilities and two asphalt plants.

JUST LIKE GRANDAD

When Larry Carpenter founded Tri-City Blacktop, Inc. in 1969, he used Cat® machines. Two generations later, the company's fleet has grown to more than 30 Cat machines, including loaders, a dozer, rollers, a motor grader, cold planer and a paver.

A PM622 Cold Planer is the newest Cat machine owned by Tri-City Blacktop. "When they released this mill, there was no question that we were going to have one," said Luke Carpenter, field superintendent.

Support and service that the contractor receives from both Caterpillar and Cat dealer, Altofer, were key considerations in the decision to purchase the machine. "They've never let us down," Carpenter said.

Dependability of Cat machines was also a

significant factor. "Our uptime with Cat equipment is 98 percent. We've virtually eliminated downtime," Carpenter said. "The way that jobs are figured now, you can't afford downtime."

The PM622's service points are quickly accessible. "Everything is easy to get to—the filters, the drains, everything," Carpenter said. "The tool holder system is very easy to change, very fast. There's no bolts to tighten. It's a 30-second change."

And the machine is equipped with Product Link™, which provides a wealth of information about machine performance to keep uptime high and identify and address any problems that may cause breakdowns.





CHECK YOUR WORK

FIVE QUESTIONS HELP ENSURE COLD PLANING SUCCESS

A simple rule helps ensure success when cold planing is part of a project: Paving shouldn't proceed until the quality of the milled surface has been verified.

Five questions must be asked to verify that cold planing has been properly completed:

1. Are the elevations left by the cold planer correct?

This is important when you encounter height clearance issues, and when matching the height of adjacent structures such as curbs and gutters is necessary.

2. Is the transverse profile (slope) correct? Remember, a cold planer can be set up to control slope just like a paver.

3. Is the surface texture acceptable? There are different types of cutter drums. A project may require micro-milling produced by a cutter with closely spaced tools. Excessive milling speed can cause the tool spacing pattern to be incorrect.

4. If required by the owner/agency, have you monitored ride quality and delamination? If there is a high degree

of roughness, cold planer operation must be changed to improve smoothness. (Installing an averaging ski, slowing down, or increasing tool maintenance are some possible remedies.) When the cut depth is just above the intersection of two bituminous layers, a portion of the remaining upper layer may lose its bond with the lower layer and break off in thin chunks. Paving over delaminated areas creates variable thickness, with loss of smoothness and density variations. The milling depth may need adjustment to reduce the risk of delamination.

5. Has the surface been properly swept and cleared of all debris? All loose material must be removed from the milled surface before paving begins.

Milling experts at our dealership are always available to provide you with assistance that will help make your project a success. In addition, milling tips can be found at Cat.com. ■



Pave The Way

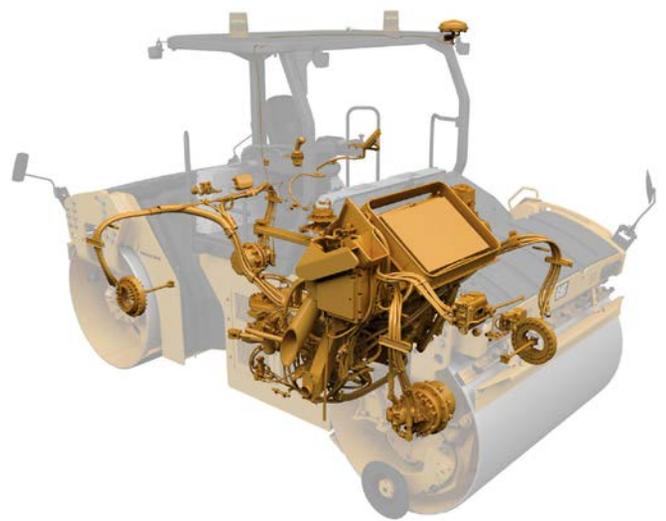
WITH THE NEW CAT® B-SERIES ROLLERS

The new Cat® B-Series Tandem Vibratory Rollers are 12 to 14 metric ton compactors that feature wider drum widths, high-flow water spray system, increased operator comfort, and enhanced technology to help operators and machines perform at higher levels. The features of the CB64B, CB66B and CB68B models include:

- » Auto-Adjustable Compaction
- » Pass-Count and Temperature Mapping
- » Machine to Machine Communication
- » Compaction Meter Value
- » Efficient Power and Eco-Mode
- » Keeping Operators Productive
- » Smooth, Maneuverable
- » Versatile Vibratory Systems
- » Durable Water Spray System

Give us a call to learn more about the new B-Series models or tell us about your next project at LouisianaCatPavingNews.com.

BUILT FOR IT.™



866-843-7440

Louisiana CAT

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Cat[®] Grade and Slope's Performance-Boosting Features

What separates the Cat[®] Grade and Slope system from others? Like so many Cat products, it comes down to performance, reliability and product support.

Intuitive Displays

The straightforward LCD display enables the operator to easily configure the system and make necessary adjustments.

Highly Reliable

The sealed components provide durability and withstand heat, moisture and vibration. The factory installed system ensures that consistent routing and component locations optimize performance.

Single Source Supplier

Louisiana Cat offers complete

support of the entire system. That includes training, consulting and parts support. There is no need to utilize outside suppliers and risk improper setup.

Precise Control

The Cat Grade and Slope system enables operators to place the exact amount of mix on the surface. Controlling thickness maximizes material usage and optimizes compaction performance while saving money for contractors.

The System

- Is available in multiple languages and stored on the Electronic Control Module (ECM), making the LCDs interchangeable from side to side.



- Can provide elevation to one or both sides of the system; cross-slope; or elevation and cross-slope.
- References existing surfaces, curbs and string lines.
- Provides automatic calibration of tow-point valves.
- Is factory installed to ensure proper setup and routing.
- Features sealed components to prevent contamination.
- Enables the operator to change the “deadband” settings for grade, slope and two-point valves.
- Provides visual and audio warnings in the event of a fault condition.
- Stores fault history on the ECM.

LCD Display

- Can operate both sides from a single display.
- Large displays and familiar icons make interpretation easy.



- Text-based menus require minimal training, making setup quick and easy.
- Fault code diagnostics feature easy-to-read explanations; no need to reference a manual.
- Offer brightness and contrast controls that are effective during day or night paving.
- A lockout feature prevents unauthorized access.
- The Cat grade sensor provides a wide reference range that makes following a stringline easier.
- A directional arrow advises the operator how to stay centered when using a stringline.
- An audible alarm alerts the operator to off-grade conditions or diagnostic messages.
- Features a swivel that enables the operator to view the screen from the walkway and side of the screed.

Grade and Slope Sensors

- The system can utilize up to three grade sensors on the averaging beam. Each sensor sends out five sonic pulses for a total of 15 readings. Six signals are discarded, while the remaining nine are averaged. The tow point will adjust by $\frac{1}{3}$ of the total deviation—true averaging for smoother transitions.
- Each sonic grade sensor features five ceramic transducers. Three signals are averaged, while two are discarded.
- Sonic grade sensors provide a reference range of 8" to 39".
- Grade sensors account for rapid air temperature changes.
- Contacting grade sensors are available with a shoe- or wand-type sensor.
- Slope sensors measure the cross-slope of the screed and provide an angle range of $\pm 10^\circ$ or $\pm 17.6\%$.

- A cross-coupling feature enables the side slope to immediately react if the grade side makes an adjustment.
- The slope sensor requires a single calibration.
- The sonic averaging beam reduces grade deviations in the paved surface.
- When utilizing the averaging beam, the system provides on-the-go selection of one, two or three sensors. Switching between sensors does not require recalibration.

Call Louisiana Cat today to learn more about the Cat Grade and Slope system.

866-843-7440



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Success Made Simple

PM620 and PM622 Cold Planers provide easier, more productive operation

A pair of cold planers—the PM620 and PM622—have been introduced by Caterpillar. Both are high-production, highly maneuverable half-lane milling machines that perform controlled full-depth removal of asphalt and concrete pavements in a single pass.

AUTOMATED FUNCTIONS

- Automatic Load Control is a standard feature to enhance machine productivity while milling. An ECM continually evaluates engine rpm and controls propel speed as required to maintain peak performance for maximum output.
- The Automatic Engine Speed Control feature enables the engine to optimize output to match the load, reducing excessive fuel consumption and wear on the engine.

VIEW FROM THE TOP

The operator's station features dual operating controls, including joystick steering/propel lever, upper conveyor controls and rear track steering controls. Ergonomic instrumentation layout has been designed for comfort and ease of use.

CAT GRADE CONTROL

Both the PM620 and PM622 can be equipped with the optional Cat Grade Control system. The 2D-capable/3D-ready grade and slope system automatically controls rotor depth and cross slope to a preset cutting depth, and can be enhanced for full 3D control with the addition of optional equipment.

Contact Louisiana Cat to learn more about the ways the Cat PM620 and PM622 Cold Planers can improve your milling crew's productivity and your company's bottom line.

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Model	PM620	PM622
Operating Weight:	73,260 lb (33,330 kg)	74,580 lb (33,900 kg)
Transport Weight:	64,680 lb (29,400 kg)	66,140 lb (30,000 kg)
Engine:	Cat® C18 ACERT™ Diesel	Cat C18 ACERT™ Diesel
Gross Horsepower:	630 hp (470 kW)	630 hp (470 kW)
Rotor Width:	79 inches (2010 mm)	88 inches (2235 mm)
Maximum Cutting Depth:	13 inches (330 mm)	13 inches (330 mm)



ASPHALT REDUX

GUIDELINES SIMPLIFY BINDER GRADE SELECTION WHEN USING RAP

The use of Recycled Asphalt Pavement (RAP) is becoming increasingly more common on a variety of paving projects, but care must be taken when selecting the mixture's binder grade.

Most agencies have developed a means of accommodating the stiffness of the reclaimed asphalt made from RAP by the selection of the particular grade used for the virgin binder.

To simplify the process, the Federal Highway Administration (FHWA) has developed recommendations to provide guidance in asphalt binder grade selection when using RAP:

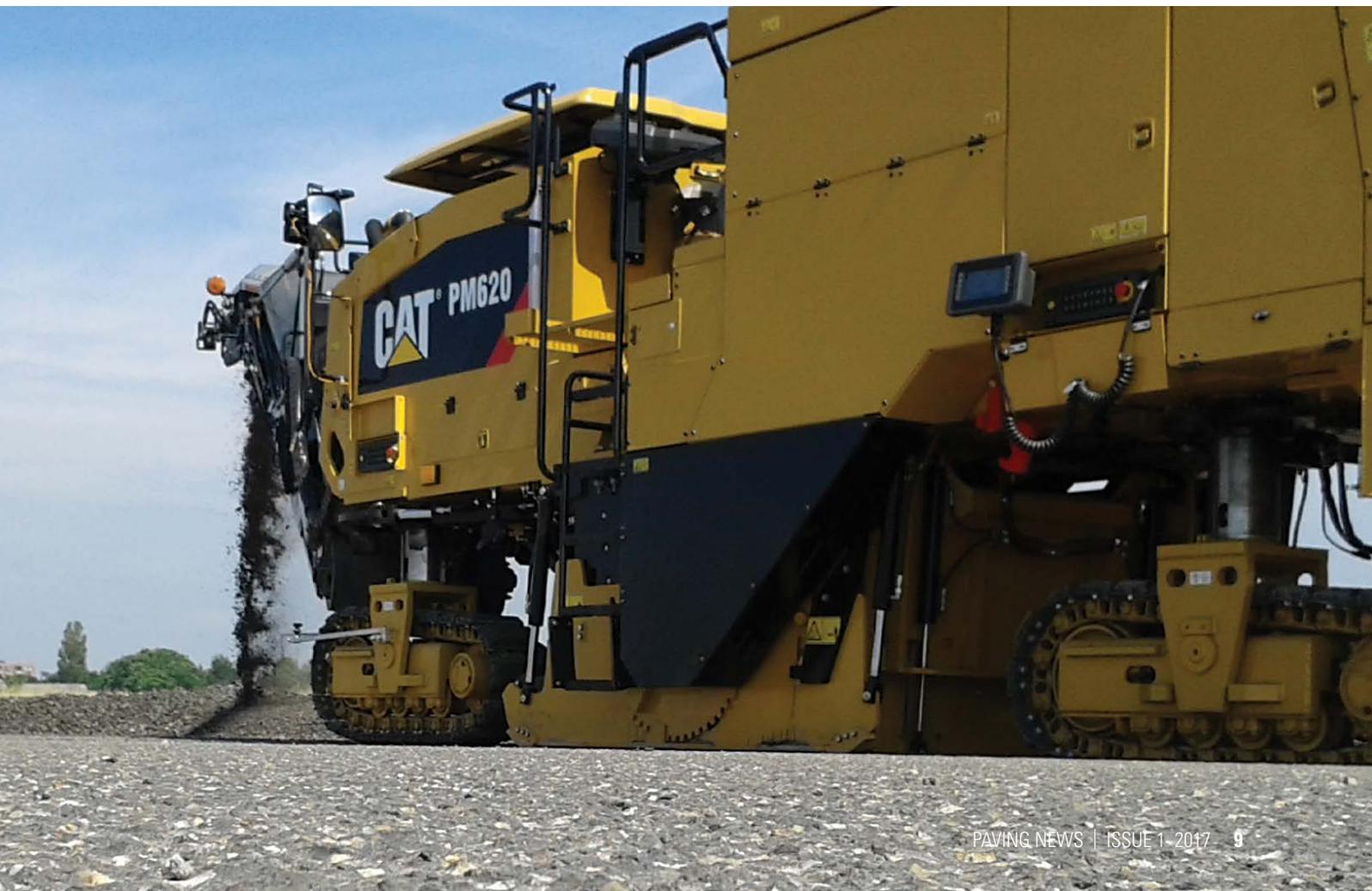
- **Fifteen percent or less RAP:** The binder grade for the mixture is selected for the environment and traffic conditions, the same as for a virgin mix. No grade adjustment is made to compensate for the stiffness of the asphalt in the RAP.
- **Sixteen to 25 percent RAP:** The selected binder grade for the new asphalt is one grade lower for both the high-

and low-temperature stiffness compared to the binder grade required for a virgin asphalt. For example, if the specified binder grade for the virgin mix is a PG 64-22, the required grade for the recycled mix would be a PG 58-28.

- **More than 25 percent RAP:** The binder grade for the new asphalt binder is selected using an appropriate blending chart for high and low temperature. The low-temperature grade is one grade lower than the binder grade required for virgin asphalt.

Generally, these guidelines are applied to both new and existing pavements. In a warranty project, a more conservative approach — such as the use of blending charts — may be taken.

More information can be found at FHWA/dot.gov. Contact your local state highway agency and/or asphalt binder supplier for prevailing local practices. ■





A PROJECT TO REMEMBER

FOUR PAVING CREWS JOIN FORCES TO PLACE 5,000 TONS OF HOT MIX IN ONE NIGHT

Wannamaker Road is the busiest street in the capital city of Topeka, Kansas. To keep traffic disruption to a minimum for a 2.5-inch asphalt overlay on seven blocks of the street, four Bettis Asphalt & Construction, Inc. crews converged on the site to complete the asphalt paving work in a single night.

"We're going to show off our paving crews tonight, and put them all on the job at once," said Ryan Randall, asphalt group manager. "When we shut the road down at nine o'clock, we're going to line four pavers up and use echelon paving from curb to curb."

The Topeka-based contractor typically runs four to five paving crews at different jobs, but moving deep into fall

on a job that had to be finished by mid-November, all crews joined forces to place 5,000 tons of hot mix in one shift.

"We're trying to make a four-day job into a one-day job. It's mid-October in Kansas, so we don't know what the weather will be like," Randall said. "We've had several jobs where we've run two pavers in tandem, but never four. This is a first for us."

Four main line paving crews used a pair of Cat® AP1055F Pavers, an AP1055E, and an AP1055D to complete the paving on Wannamaker Road. A fifth paver, a Cat AP655D, served as a backup and paved turn lanes and smaller side roads.

"We geared up and decided to

do this project in one night due to the weather limitations that we'd be facing if we waited and broke it up into multiple phases," said Mark Bettis, vice president. "We really hit it lucky with temperatures in the mid-seventies and calm weather the night of paving."

The job was originally a 2-inch mill and overlay, but the city was concerned that if too much material was milled it would disrupt the underlying layer of concrete. Instead, the road was profile milled, and a 2.5-inch asphalt overlay placed on top of the milled surface.

Train Keeps Rolling

The city specified a BM2A mix with a 70-28 oil. To maintain a steady flow



“We’ve had several jobs where we’ve run two pavers in tandem, but never four. This is a first for us.”

RYAN RANDALL

ASPHALT GROUP MANAGER
BETTIS ASPHALT & CONSTRUCTION, INC.

ACCURACY ASSURED

Precision is required for successful asphalt paving. Cat® Grade Control is a guidance system that provides precise control in four ways:

- The system provides true averaging. Sonic sensors utilize five transducers, with two readings discarded and the remaining three averaged.
- Ten-point auto-calibration eliminates over/under adjustment from single-point calibration.
- Cross-coupling, slope, and elevation are all maintained with height adjustments.
- With a true sonic averaging beam, tow point movement is 1/3 of total grade deviation.

of material, hot mix was supplied from two plants. One was 25 miles away, and the second was four miles from the site. With the warm temperatures that night, trucks making the shorter trip to the site didn’t require tarping to keep the mix warm.

With more than 40 trucks supplying hot mix to the jobsite, Bettis Asphalt & Construction, Inc. truck-dumped directly into pavers to simplify the process and help keep productivity high.

To help maintain a good quality mat

and high production rate, crews used Cat Grade Control, a factory-integrated guidance system that helps remove irregularities from the surface and control mat thickness. “The technology today, compared to five years ago, is unreal. The pavers today are so advanced,” Randall said.

The ensemble crew utilized variable width paving on the Wannamaker Road overlay, with widths ranging from 12 feet to 18 feet. The SE60 V Screeds on the pavers can place a mat ranging



from 10 feet, six inches wide to 19 feet, six inches. “That versatility is great for us. We do all kinds of different jobs, everything from parking lots, city streets, to DOT work,” Randall said.

The SE60 V Screed is equipped with rear-mounted extenders and fast-heating screed plates, which helps in applications that require variable-width paving. A 70kw integrated generator heats the screed in less than 20 minutes and provides even heat distribution throughout the screed plates. Even heat helps prevent segregation.

The mat was placed with a minimum density of 92 percent. Three breakdown rollers and five finish rollers (including Cat CB64 and CB54 rollers) were used to complete compaction. Bettis Asphalt and Construction used a minimum of four vibratory passes with breakdown rollers. A smaller roller smoothed any surface marks. “You can’t even see a joint,” said Pete Martin, paving specialist with Foley Equipment. “Bettis Asphalt did a very nice job.”

The overlay is expected to last 10 to 15 years—a very good return on one night’s paving. ■

RECIPE FOR SUCCESS



MARK BETTIS

Terry Bettis founded Bettis Asphalt & Construction, Inc. in Topeka, Kansas, in the late 1970s. Today, the company runs four asphalt paving crews, and also does grading, milling, bridges, and concrete work. Crews complete approximately 200 projects annually. Five asphalt plants, including three portable plants, are also part of the enterprise.

“He started with a small plant, and has really grown the business,” said Mark Bettis, company vice president and Terry’s son.

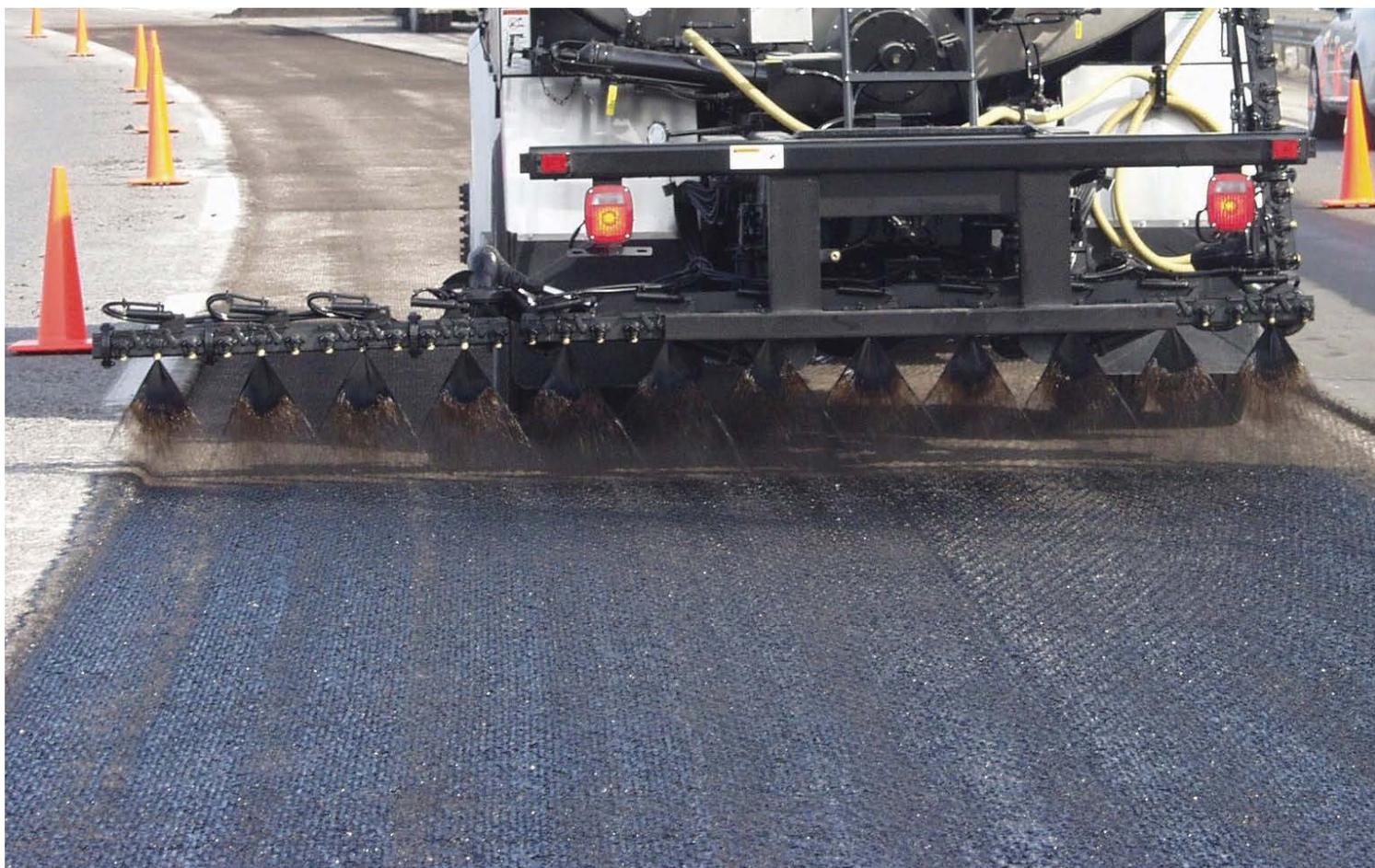
Two other children, Eric and Ashley, are also integral to the company’s success. “We have uncles and cousins that work with us, too,” Mark Bettis said. “We’re a real family business.”

Employees are part of the extended family. “We have some great employees, as well, who have really helped us grow. We all enjoy what we do, and enjoy working together,” Bettis said.

Another component in the company’s success—high quality machines.

“We put the best equipment in the crews’ hands, and they do top-notch work,” Bettis said. “We’re continually upgrading the equipment. Technology has become quite important with our equipment, and we have had great results doing that. We’re achieving greater efficiencies with the new pavers.”





UNBREAKABLE BOND

SUCCESSFULLY APPLYING A TACK COAT

A tack coat is generally applied prior to placing a thin overlay to improve the bond between the existing surface and the overlay. The bond increases the strength of the pavement structure by limiting slippage between layers and the durability of the overlay by reducing the possibility of delamination. A tack coat is also necessary to seal the pavement when open-graded overlays are used.

Too much tack coat can be detrimental, particularly with conventional overlays, causing bleeding in the overlay. Tack coats are typically a slow-setting emulsion, either SS-1 or SS-1h, CSS-1, CSS-1h, or RG 250.

A uniform application of about 0.03 to 0.05 gal/yd² of residual asphalt should be placed on the layer to be tacked. Slow-setting emulsions generally have a residual asphalt content of about 2/3. Therefore, an application rate of 0.10 to 0.15 gals/yd² of the diluted material will give you the 0.03 to 0.05 gals/yd².

Two precautions for successfully placing a tack coat are:

- Once the tack coat is applied, time must be allowed for emulsion to break (turn from brown to black) prior to placing hot mix on it. The length of time required for this to happen will depend on the weather. In good paving weather, it will take only a few minutes. In marginal weather, it may take several minutes.
- Never apply an emulsion tack coat to a cold pavement (below the freezing point). The emulsion will break, but the water and emulsifying agents will freeze and remain in the layer that has been tack coated.

These precautions help prevent the upper layer from improperly bonding to the under layer and a slip plane from developing. Contact the trained professional at our dealership to learn more tips to help you make any paving project a success. ■

To help avoid screed settlement marks during a continuous paving run, remixing transfer vehicles are ideal for maintaining a steady supply of mix to the paver.



SOLVING THE MYSTERY OF SCREED ASSIST

Q: WHEN SHOULD SCREED ASSIST BE USED?

The answer, perhaps surprisingly, is **rarely—only when using certain tender mixes.**

The Screed Assist/Counterbalance system is designed to help prevent or reduce settlement marks when paving with some tender mixes. When the Screed Assist/Counterbalance system is activated, it exerts a small amount

of upward hydraulic pressure to the rod side (lift) of the cylinder to support the screed.

When a screed is used during normal paving operations, it is in the “float” mode. This means that the rod and head end of the screed lift cylinder is open to the hydraulic tank and the screed is free to raise or lower, depending on the forces placed on the screed. While paving, the weight of the screed pre-compacts the mix upon

which it rides. When the paver stops, the weight of the screed makes it sink into the mix, causing a settlement mark. The prominence of the mark depends on the mix type (sandy or tender mixes), length of time the paver is stopped, and the screed weight. Other factors, such as a poor angle of attack, can cause the mark to be deeper. If the mark is deeper than the compaction rate of the mix, these settlement marks can affect the finished mat’s smoothness, which can reduce bonus pay or increase deductions.

Settlement marks are more likely to occur when placing tender mixes, which have smaller aggregates, and when using straight-run asphalt cement. These kinds of applications are somewhat rare. Settlement marks will be less apparent when paving with stiff mixes, especially those with modified asphalt cement, because they are better able to support the weight of the screed. Most applications use stiffer mixes.



When stopping the paver during truck exchanges or for any other reason, make sure the counterbalance or screed assist system is activated to avoid causing a screed settlement mark as shown here.



Working in close proximity to the paver, an experienced operator on the breakdown roller can help minimize any smoothness issues should the paver be forced to stop unexpectedly, leaving a screed settlement mark.

How do you know when you need Screed Assist?

Assuming that the screed is properly set, there is a simple procedure that will tell you if Screed Assist is needed.

When paving starts again after an idle period, wait for the initial-phase compactor to make a pass over the area where the paver stopped. If the screed settlement marks aren't visible, compaction has completely eliminated the marks, and they won't affect the ride quality. In this case, Screed Assist is not needed. If the marks remain visible after the initial-phase compaction, activate the Screed Assist system. Repeat the test above. If the initial-phase compactor takes out the marks, run at the factory setting. If the marks remain, increase the pressure by 1.7 bar (25 psi). Repeat the test; increase if required not to exceed 10.3 bar (150 psi). If using the system already, increase the **Standby** system pressure only. If the screed is running at a high angle of attack, adjust both the **Moving Assist** pressure and the **Standby** pressure not to exceed 10 bar (150 psi). Caterpillar recommends the angle of attack should be low, in the 3-6 mm (1/8"-1/4") range.

Cat pavers also have a function called "Screed Lower Lock." If the screed is running at the correct angle of attack, but is leaving settlement marks that are too deep, then actuate the screed lower lock. When this function is engaged and the paver stops, the screed is put into the hold position, which means the screed lift cylinders support the weight of the screed. This minimizes the indentations in the asphalt mat. When paving resumes, the screed lower lock is terminated after a preset time and the screed is then released back to the "Float" mode until the paver is stopped again, the system function then automatically re-actuates.

So why can't you use Screed Assist all the time—for instance, to reduce marks on stiffer mixes?

Well, it's complicated. Screed Assist is really meant to help with a specific need.

There are a lot of factors that contribute to the performance of a screed. If you are getting deep settlement marks, be sure that your screed is set up properly and that you are using the correct angle of attack.

When using good technique, marks will not be a problem. Also, the grade control system will function properly and screed plate wear will be minimized. As always, basic technique and practices are the foundation of award-winning paving.

Training is Key

To achieve high quality paving, Caterpillar recommends continuous training that includes a review of fundamentals and principles of paving. Machine set-up, including the use of Screed Assist, are part of the training.

A thorough knowledge of how a paver works and the factors that impact the free-floating screed is essential for paving success. If every crew member, including supervisors and quality control personnel, can explain paving theory, they will be better equipped to troubleshoot any challenges that arise.

Visit **Cat.com** or contact our dealership to learn more about training opportunities that are available to help improve your crew's paving performance. Our real-world, hands-on training courses and seminars help your team get the most out of every piece of paving equipment in your fleet. ■

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