

# PAVING NEWS

A CATERPILLAR PUBLICATION SERVING THE GLOBAL PAVING INDUSTRY

Issue 1 2024

## WOW! WHAT A CHALLENGE

TALLEY TAMES W ROAD SWITCHBACKS



### Cat® SDX Screed Plate System Launched

Job Story, Performance Test & Earning Incentives



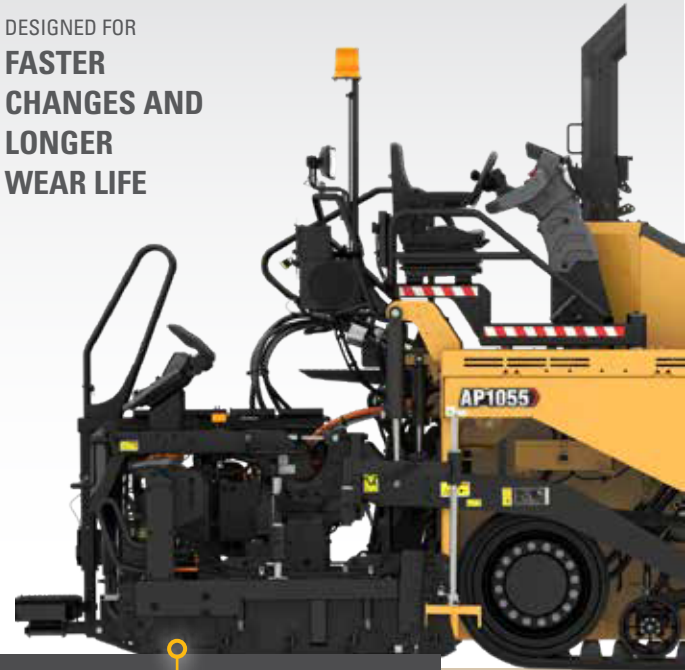
# CAT® SDX SCREED PLATES

## WHAT CAN THEY PROVIDE FOR YOUR BUSINESS?

DESIGNED TO  
**INCREASE  
DENSITY**

DESIGNED TO PROVIDE  
**BETTER  
SMOOTHNESS**

DESIGNED FOR  
**FASTER  
CHANGES AND  
LONGER  
WEAR LIFE**



### INCREASED DENSITY AND SMOOTHNESS

Contractors utilizing the Cat® SDX Screed Plates have experienced higher and more consistent densities across the width of the mat. Contractors have also realized improvements in International Roughness Index (IRI) scores. The combination of increased density and smoothness leads to longer lasting roads.

### FASTER SCREED PLATE CHANGES

Machines equipped with the Cat® SDX Screed Plate System utilize a hardware-free locking system that enables replacement in as little as 4 hours. This unique design minimizes the need for scheduled downtime.

### LONGER WEAR LIFE

The Cat SDX Screed Plates are designed with cast chromium-alloy materials that provide consistent properties throughout the plates to increase wear life when compared to standard screed plate designs.

\* Results may vary by application and job site conditions.

QEXQ3225-01 (7/24)

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## CAT® SDX SCREED PLATE SYSTEM UPGRADE

Now is a great time to upgrade to the Cat® SDX Screed Plate System\* for your 2025 paving season. Just give us a call or stop by today to discuss your installation and financing options.

\*NOTE: The Cat SDX Screed Plate System is currently available on the SE60 V and SE60 V XW screeds from the factory or as a field retrofit.





# WOW! WHAT A CHALLENGE

## TALLEY TAMES W ROAD SWITCHBACKS

Headquartered in Rossville, Georgia with a satellite office in Chattanooga, Tennessee, Talley Construction Company is well known for successfully tackling some of the toughest asphalt paving jobs in the East Tennessee, North Georgia and Northeast Alabama tri-state region. However, the Talley team has rarely won a bid more challenging than the W Road.

The historic, highly traveled 3.2-mile W Road linking Chattanooga to the Town of Signal Mountain at the top (population 8,852) was badly in need of a repave after approximately 30 years of wear and tear. Located on Walden's Ridge at the southern end of the Cumberland Plateau, the historic town takes its name from a bluff called Signal Point, which sits high above the Tennessee River Gorge and the City of Chattanooga.

From the trailhead to the Signal Mountain summit, the elevation change is approximately 2,600 feet. Varying in width from 22 to 24 feet, the W Road's bottom 85% would be considered a relatively routine repaving job by any measure. However, three super-sharp, hairpin switchbacks near the summit, made paving the other 15% anything but routine.

Fortunately, Talley vice president of asphalt operations Robert Taylor and his team have an outstanding skillset and were able to draw on years of experience that facilitated safe and successful project completion.

A helping hand from Cat® machines and equipment dealer, Stowers Cat, helped tame the three 180° switchbacks resembling the script letter W.

The project's milling and repaving phases started at the summit and worked their way through the W switchbacks, then down to the bottom. Safety was prioritized for the drivers of the milling removal and hot mix haul trucks, as well as the Talley equipment operators and ground personnel. The simple goal was keeping crew members on the uphill side of all equipment should there be any brake or other mechanical failures.

### Safety-First Milling Emphasis

The first priority during the three-week W Road shutdown, was milling 1-1/2 inches of dilapidated pavement that rested upon several previously repaved layers dating back many decades. Making the overlay substructure as stable as possible to accept the new driving surface was the goal. Any structurally unsound areas were



rehabilitated to the extent possible. To efficiently handle milling requirements, a Cat PM825 was selected for the job. Slightly overlapping passes with an 8 ft.-3 in. milling drum efficiently completed that portion of the project.

Daniel “Drew” Kovacs has worked on Talley Construction milling projects for 16 years, first as an equipment operator and the last 10 as a milling foreman. “The technology on the new Cat® PM825 mill provided outstanding control of the process. On a project like this, the maneuverability through the steep, switchback turns near the top of the mountain was very impressive. We worked our way down the mountain through the switchbacks in four longitudinal segments, approximately 500 to 600 feet at a time. In some stretches, the downslopes were as steep as 15-16%.



“The goal was simply removing the old pavement on each of the four straighter segments of the W and turning the three sharp corners before starting the next switchback segment. That kept our people and equipment out of harm’s way. Truck drivers did an outstanding job backing up through the switchbacks to get into position to keep the milling and paving processes flowing smoothly. Once we completed the W switchbacks, the rest of the milling and repaving operations proceeded as they normally would on a mostly straight two-lane road.”

**Laydown Also Stresses Safety**

The top-down approach to repaving required the 10-wheel tandem dumps to back up the mountain through the switchbacks to reach a Cat AP600 wheeled paver. Three point turns in reverse were required to negotiate each switchback. Using hot joints, the latest AP600 paver, equipped with a Cat SE47 FM screed, handled the repaving process in three 8-foot-wide mat ribbons down through the W switchbacks.

Compaction was handled by two Cat double-drum, vibratory rollers smaller in size than would normally be used on a typical mainline job. The larger one was a CB7, and the smaller one was a CB34B. Together, they were able to achieve the target 92% density or better across the full width of the mat. Upon clearing the switchbacks, a newer generation Cat AP1000 paver equipped with a new Cat SE60 FM screed was brought in for repaving to the bottom in two passes.

“Compared to the mainline portion of the job, everything about the paving and rolling operations through the switchbacks required more time and a higher level of patience,” said paving foreman Matthew Bean. “We felt that was the best approach to this challenging portion



*(Continued on page 6)*

of the repave. Our team included some veterans who were unfazed by doing some handwork at the W apexes to make sure the uncompacted mat was placed at the necessary depth to achieve the specified compacted depth of 1.5 inches. Fortunately, the W Road was completely shut down, and we had multiple spotters assisting the trucks backing in empty during milling and loaded with tarped mix during paving.”

### Complexity at the Top

The extremely sharp W switchbacks required extensive planning and slower milling and repaving processes. With the road subbase dating back to 1850 and probably five or six subsequent asphalt overlays placed prior to the introduction of milling during the mid-1980s, the 2024 budget simply didn't provide funding for a full-depth rebuild. Some core holes drilled to assess the stability of the existing pavement indicated that approximately 10 to 12 inches of asphalt had been laid during initial and subsequent repaves,

without the benefit of milling. The primary reason milling was specified for this repave was to remove weight comparable to the new overlay.

### Technology and Dealer Support

“On this job with some shear drop-offs on one side and/or natural rock formations on the other, we didn't have the ability to run skis on our pavers,” said Taylor. “But technology is still very important. Since we can't use 3D on this job because there's no room to place the receivers, we're relying on 2D milling to make 99% of slope and grade adjustments that will improve drivability on one hand and drainage on the other. The technology on these Cat machines is very intuitive. Operators can hold grade really well, and make needed adjustments on the fly.

“When you're talking about milling-paving productivity and efficiency these days, horsepower and feet-per-minute are still important, but they're not necessarily at the top of the list. A big factor is taking someone with limited

experience, and being able to train them on a machine that's very intuitive, and very user friendly. Having machines and people that enable a paving crew to do a great job, work a little faster, with greater accuracy, reduced fuel burn, and possibly requiring fewer team members is huge. Plus, having onboard conveniences such as phone chargers and cup holders is really appreciated by all of the operators.

“We've grown to be really close partners with Stowers Cat, particularly on projects like this with tight schedules and the added pressures of quickly reopening a closed road,” continued Taylor. “We absolutely must have the parts and service support from a dealer who really understands the nature of the asphalt milling and paving business. Having the depth and breadth of parts inventories and experienced service technicians who can react quickly should we encounter an unexpected problem are critical to our success. On our Cat machines, we also appreciate the parts commonality that's evident within machine types and from one product family to another.

Clearly, the challenges posed by W Road milling and repaving required an outstanding team effort and reliable equipment to tame the switchbacks and quickly reopen a historic road relied upon by thousands of daily drivers. ■

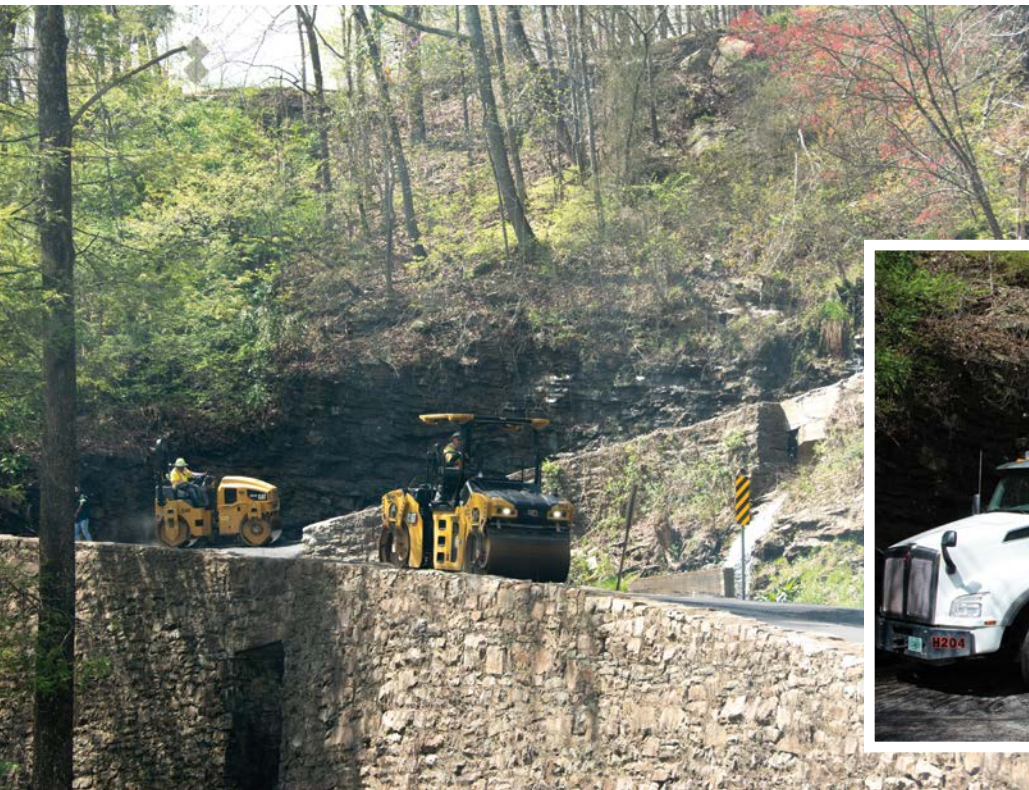




Photo courtesy of the Library of Congress, Prints & Photographs Division



## W ROAD HISTORY

The “W” Road traversing Tennessee’s Signal Mountain, connecting Chattanooga to the town of Walden at the top, has a rich and colorful history. It began centuries ago when Native Americans hunted deer, bear, turkey, and grouse on Walden’s Ridge. Tribes lived in the valley at the foot of the mountain and used a system of trails to climb up to the ridge, including a natural pass at Roger’s Gap.

The town of Signal Mountain at the top is named for the Signal Point landmark, where Native Americans communicated by sending smoke signals across the Tennessee River Valley. Centuries before the Civil War, tribes lived and hunted along Walden’s Ridge, elevation 1,703 feet.

During the Civil War, the W Road served as part of a Union supply line originating in Nashville. The road later gained recognition as Chattanooga’s wealthiest residents escaped a yellow fever outbreak in 1873 by venturing up Walden’s Ridge to the wilderness health resorts at the top. The story of the modern W Road begins around 1890, when Tom Connor and his brothers sold the “turnpike” privileges owned by their family for \$300. The road became free and open to the public.

Expansion by Hamilton county workhouse gangs began in the summer of 1892. When the project proved to be much more difficult than originally anticipated, the number of workers ballooned from 17 men to 83. Spectators came by the hundreds to marvel at a safe distance as the crew blasted

away rocks in spectacular fashion. The project was completed at a cost of approximately \$11,000.

### The W Name

A series of three switchbacks that resemble the letter “W” eventually became the defining feature of what is now commonly known as the W Road. After a series of mild curves at the lower elevations, the road takes on a much more challenging profile near the top, with three very sharp hairpin turns nearly making complete 180° loops or switchbacks.

The infamous W is a short mountain road with extremely tight hairpins. As the story goes, the three turns are so steep and so sharp that ‘you can see your taillights ahead of you.’ Semi-trailer trucks are prohibited from using the W Road because they’re much too long to negotiate the sharp turns without making a series of very disruptive back-and-forth maneuvers to navigate each apex.

The drive can be a harrowing experience, especially for skittish drivers who are afraid of heights. The presence of guardrails does little to calm their nerves and help them through the switchbacks. Spanning 3.2 miles from bottom to top, the W Road was entirely milled and repaved during 2024, likely more than 30 years since the prior repave. ■



# EARNING PERFORMANCE INCENTIVES

## DENSITY • SMOOTHNESS • CONSISTENCY

Asphalt paving quality for highways and runways requires attention to detail. Small quality improvements can have dramatic effects on whether the work performed met incentive requirements or resulted in deductions for not meeting them. Production, density, smoothness, and consistency are often used to determine if performance incentives are achieved, or deductions are incurred. The following incentive payment examples relate to compaction density, ride quality or smoothness, and percent-within-limits (PWL) or percent-defective measures.

### Final In-Place Density – How Pay for Performance Works

Pay for performance incentives for final in-place density are awarded when the quality of work exceeds contract specifications. Contracts are bid on a price per ton basis and paid on the amount of asphalt that is placed according to the contract’s tonnage specifications. These densities are then applied to adjustment factors and multiplied by the daily production to arrive at the incentive payment.

The following table provides an example of adjustment factors when applied to final in-place density.

Adjustment Factor	Average Pavement Density
1.04	≥ 94.0%
1.02	93.0 to 93.9%
1.0	92.0 to 92.9%
0.95	91.0 to 91.9%
0.90	90.0 to 90.9%
Remove & Replace	< 90.0

**NOTE:** The incentive payment examples and calculations contained in the above article are only intended to provide examples of hypothetical incentive payment calculations and do not represent a specific jobsite or application.

Daily Production Cost (Bid Cost) X Adjustment Factor (Final Density %) = Performance Incentive

### Incentive Example

**Daily Production:** 6000 tons  
**Asphalt Bid Price:** \$55/ton  
**Daily Asphalt Cost:** \$55 X 6000 = \$330,000

### Density Incentive

**Adjustment Factor:**  
**1.04 (≥ 94% Density)**  
 • \$330,000 (Daily Asphalt Cost) X 1.04 = \$343,200

**Factor:**  
**1.02 (93.0% to 93.9% Density)**  
 • Adjustment \$330,000 (Daily Asphalt Cost) X 1.02 = \$336,600

**In this example, the incentive gain is \$6,600 between the two adjustment factors.**

### International Roughness Index – How Pay for Performance Works:

Pay for performance incentives for IRI are awarded by roughness indicated in inches per lane mile. The lane mile is divided into 1/10 of a mile (528 ft.) segments or sub-lots and multiplied by the corresponding incentive.

The following table provides an example of performance incentives when applied to International Roughness Index (IRI) per Lot.

MRI Range Inches per Lane Mile	Performance Incentive per Lot
≤ 32.0	\$400
32.1 – 36.0	\$300
36.1 – 39.0	\$200
39.1 – 42.0	\$100
42.1 – 50.0	\$0

### Incentive Example:

Number of sub-lots (528 ft.) X Incentive per Lot = Performance Incentive

### IRI Incentive

**MRI Range:**  
**32.1 – 36.0 inches per lane mile**  
 • 40 Lots x \$300 = \$12,000  
**MRI Range:**  
**36.1 – 39.0 per lane mile**  
 • 40 Lots x \$200 = \$8,000

**In this example, the incentive gain between each MRI range factor is \$4,000.**

### Percent-Within-Limits (PWL) – How Pay for Performance Works

Percent-within-limits or percent-defective utilizes mean and standard deviation to calculate the percent of in-place density that falls within the upper and lower specification limits.

**NOTE:** Lower standard deviations equate to higher PWL pay factors.

Daily Production Cost (Bid Cost) X PWL Pay Factor = Performance Incentive

### Incentive Example

**Daily Production:** 6000 tons  
**Asphalt Bid Price:** \$55/ton  
**Daily Asphalt Cost:** 6000 X \$55 = \$330,000

### Density Incentive

**PWL Pay Factor:**  
**100% (Standard Deviation – 0.59)**  
 • \$330,000 (Daily Asphalt Cost) X 100% = \$330,000  
**PWL Pay Factor:**  
**84% (Standard Deviation – 1.57)**  
 • \$330,000 (Daily Asphalt Cost) X 84% = \$277,200

**In this example, the incentive gain between pay factors is \$52,800. ■**



# +PRODUCTIVITY, +SMOOTHNESS, +DENSITY

CAT® SDX SCREED PLATE SYSTEM  
DELIVERS RESULTS



Central Specialties, Inc. of Alexandria, Minnesota recently completed a 10.53-mile segment of North Dakota Highway 85 in McKenzie County from Watford City south to the Long X Bridge. Accounting for approximately 65% of the contract's \$77.23 million value, major categories included some pavement removal, common excavation, borrow excavation, drainage piping, placement of an 18-inch aggregate base course for the new roadway, asphalt paving, and topsoil placement. The project's timeframe extended from April 1, 2023 through October 5, 2024, with a five-month winter work suspension from November 15, 2023 to April 15, 2024.

The contract specified placement of a 3.5-inch asphalt overlay on the existing two-lane roadway, while the new, two lane segment involved placement of an 18-inch crushed stone base supporting 7.5 inches of new asphalt. Some segments were divided, and some were not. Pavement bonus payments were available for asphalt compaction

density and IRI smoothness scores. Test results are available in the accompanying story on pages 12-14.

At the November 5, 2024 ribbon cutting, Chad Orn, NDDOT deputy director for planning, said, "The successful completion of this Highway 85 four-lane project is a major win for the state of North Dakota. This heavily traveled highway received several major upgrades that will increase safety for motorists and pedestrians, improve traffic flow, and enhance the movement of goods."

Working in cooperation with the project's engineering firm, Central Specialties and Cat Paving were authorized to conduct a side-by-side comparison of the new Cat® SDX Screed Plate System with the conventional Cat Screed Plates during echelon paving. In addition to the measured results, members of the Central Specialties paving team provided the following observations about the performance of the Cat SDX Screed Plate System.

## Cat® SDX Screed Plate Performance

"I've observed many asphalt-paving innovations during my 22 years in the business, and these Cat SDX Screed Plates rank right up there near the top of the most-impressive list," noted paving superintendent John Fales. "We've been using them for more than a year now. When we first started, we quickly noticed the uncompacted mat behind the screed was much denser. When we walked on the uncompacted mat, we weren't leaving footprints."

*(Continued on page 10)*





That in itself was very impressive and convinced us the this technology was for real.

“Over time, we also observed the metallurgy used in the SDX Screed Plates were helping them last much longer, six, seven, or eight times longer. That’s impressive, particularly when you consider that we’re dealing with very jagged, crushed granite and quartzite. With these drier aggregates we’re seeing here in North Dakota, we’ve also been able to run the pavers as fast as

90 feet per minute. Productivity is up. Smoothness is up. And density behind the screed is up. And compacted density across the mat is more consistent. What we’ve noticed the most is a denser, tighter wear surface, plus we’re not seeing nearly as much roller squish-out.

“The kneading action through and below the the Cat SDX Screed Plates that the Cat Paving guys like to talk about really helps lay down a tighter, denser mat. The density behind the screed is consistently higher than we normally see with conventional screed plates. Squeezing out the voids definitely helps with increased quality in four key areas: density, smoothness, resistance to moisture penetration, and wear surface longevity. We can lay an inch and a half compacted mat containing three-quarter (inch) rock, and you’re not going to see segregation like you would with traditional plates. The screed plates might be eliminating as much as

95% of the segregation that we see on some jobs. The longer I’ve seen the new screed plate in action, the more impressed I’ve become with the results.

“When it comes to longevity, these SDX Screed Plates are really tough. In highly abrasive material, we’ve sometimes had to replace conventional plates at less than 50,000 tons. The SDX plates went 300,000 tons, and upon removal and replacement, we discovered we could have used them even longer with no impact on paving quality. The wear longevity has become a key selling point for us. All things considered, what’s not to like about the SDX Screed Plates?

“Plus, we always receive topnotch parts and service support from Ziegler Cat and from other Cat dealers when we’re working outside Minnesota. That’s a given and a key aspect of what separates Cat machines from other brands. Wherever we work across the upper Midwest and Plains states, Cat dealer support is always a positive. In our home state of Minnesota, Ziegler is particularly outstanding. We rely on them for parts, field service, shop service, rebuilds, trade-ins, equipment financing, and more.”



**Additional Cat SDX Commentary**

Additional commentary was provided by Carlos Pasillas. He's been with Central Specialties more than 10 years, the last seven as a screed operator. "The mat behind the SDX screed definitely has a different Cat look with the horizontal lines, but you quickly understand the uncompacted density behind the screed is much better. Depending somewhat on the mix design, we've hit pre-compaction densities as high as 90, 91, and even 92%. That's unheard of with a conventional screed.

"I've also found joint matching to be much easier with the SDX plates. You can just set it and go. It's much easier than the conventional screed, requires less adjusting. We're consistently laying down mats that are closer to the target density. The transition process to the SDX screed involved a fairly short learning curve. Within two weeks, we had it figured out and dialed in. Given a choice, I definitely prefer the SDX Screed Plates. The mat's a lot smoother, we see fewer segregation problems, and the density behind the screed is significantly better."

This commentary wouldn't be complete without hearing from a member of the compaction team. Central Specialties lead operator Brad

**Depending somewhat on the mix design, we've hit pre-compaction densities as high as 90, 91, and even 92%."**

**CARLOS PASILLAS**  
SCREED OPERATOR  
CENTRAL SPECIALTIES, INC.



O'Brien is a 22-year asphalt paving veteran. He runs one of the Cat CB15 rollers behind the paver equipped with the Cat SDX Screed Plate.

"I really like the SDX. At first, it felt different. However, the results quickly proved it's a better screed system. I backed off on using the double drums. Now I'm mostly rolling with a single drum. Basically, I make longer passes with fewer stops. I use less water. The mat holds heat really well. If I encounter any bumps in the mat, I can blow through them, and they're gone. Even if the paver is running at higher feet per minute, the compaction team has no trouble keeping pace and meeting or exceeding the target density specs.

"When I first started rolling behind the Cat SDX Screed Plates, I immediately felt the mat was denser. The effort, the energy needed to achieve final compaction

is considerably less with these new plates. That's true whether counting the number of passes, double versus single drum, or static versus vibe. The rolling team is working to determine to what extent the breakdown, intermediate and/or finish pass counts can be reduced in various circumstances. We really like Cat pass mapping. It helps us see exactly where we're at and where we've been."

The challenging scope, harsh working environment, and complexity of this turnkey Highway 85 segment thoroughly tested the Central Specialties team, their machines, as well as all of the federal, state, regional and local oversight and support staff. Suffice it to say that everyone and everything involved on the Highway 85 project, including the new Cat SDX Screed Plate System, exceeded expectations. ■





# DO NEW CAT® **SDX SCREED PLATES** IMPROVE OUTCOMES?



## PAVEWISE TESTING PROVIDES A RESOUNDING YES!

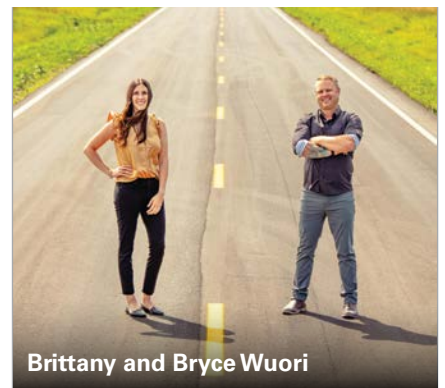
As many *Paving News* readers know, Pavewise co-founder and CEO Bryce Wuori and his co-founder, COO and wife Brittany Wuori are focused on efficiently managing variables, providing integrated software solutions, and developing success strategies for their asphalt paving customers. Based in Bismarck, North Dakota, the Pavewise team has created a comprehensive platform that addresses the challenges encountered by asphalt paving contractors. This platform revolutionizes the way projects are planned, managed, and implemented, and it has been used in more than 20 states.

During 2024 alone, the Pavewise platform has assisted on construction projects worth more than \$1.5 billion. With a focus on optimizing paving techniques and project schedules, integrating weather data, and prioritizing customer team members' wellbeing, Pavewise has earned a well-deserved

reputation for being at the forefront of significant industry innovations.

Cat® Paving engaged Pavewise to plan and implement an independent test to evaluate the performance of the new Cat SDX Screed Plate System compared to conventional Cat screed plates. The new plates provide an innovative approach to asphalt laydown that positively influences density, smoothness, and consistency across the mat's full width. Initially, Bryce found the screed's crosshatched design and the trailing horizontal lines left in the mat behind the screed a bit disconcerting. However, he quickly learned the visual appearance of lines was minimized during compaction.

The Cat SDX Screed Plate design consists of a three-dimensional angular surface on the front of the plates that tapers to a flat surface on the last two inches. A kneading action occurs as the plates manipulate the mix



Brittany and Bryce Wuori

Photo credit: Gary Ussery, Spotlight Media

passing through the angular grooves. The innovative design provides a dynamic mix flow through the screed plates that increases density behind the screed. This unique concept enhances the mat's structural integrity, lessens roller shoving, strengthens unconfined edges, and promotes better temperature uniformity side-to-side. Following is a summary of recent test results and benefits.

## Comparison Testing

The test was conducted on a two-mile stretch of North Dakota four-lane highway 85 in the Theodore Roosevelt National Park near Watford City. Central Specialties, Inc. (CSI)—headquartered in Alexandria, Minnesota—echelon paved with two Cat AP1055F Pavers equipped with SE60 V XW vibratory screeds, one having a conventional smooth plate, the other using the innovative Cat SDX Screed Plates. Both ran screed vibrations at 1200 to 1400 per minute. Each paver was fed by a Weiler E650 windrow elevator. A remixer on the one feeding the conventional paver minimally impacted the results of the collected data.

Breakdown and intermediate compaction were handled by two Cat CB15 tandem vibratory rollers behind the Cat SDX equipped paver and by two Cat CB66 tandem vibratory rollers behind the paver equipped with the conventional screed plates. During both compaction phases, the vibratory rollers were set on High Frequency and Low Amplitude. Both models are 15-ton machines whose weights and vibratory efforts are virtually identical.

Cat Compaction Control with pass-count and temperature mapping was used on all rollers to verify that the same rolling pattern was deployed behind each paver. Both echelon paving trains were set up to perform as consistently as possible. Running in static mode, a third CB15 handled finish compaction across the entire width of the mat.

The paver equipped with Cat SDX Plates experienced low to moderate thermal segregation. The average lot temperature collected was 267°F. The paver equipped with the conventional screed plates showed moderate to high segregation, and the average lot temperature was 259°F. The average mix temperature out of the trucks was 306°F.

“With the Cat SDX Screed Plates, density increased by more than 1.0 percentage points, and ride quality



was +10% versus the Cat standard screed plates,” Wuori said. “We also saw much more consistent density readings across the mat behind the paver equipped with the Cat SDX Screed Plates. Its 3D textured surface kneads the aggregate into tighter configurations, significantly reducing air voids. The more tightly manipulated structure behind the SDX Screed Plates also provides increased density and thermal consistency.”

Advanced technologies utilized during paving operations included Thermal Mapping, Intelligent Compaction and multiple data-collection technologies to provide quality assurance assessments. A new solar-powered Pavewise device, the GroundTruth system, monitored real-time weather conditions. The mix design on this project was North Dakota’s FAA45, which uses a PG64-34H binder. Typical hourly plant production exceeded 600 tons.

## Significant Advantages

With compactors consistently working the rolling pattern, the team

gathered density data. An Instrotek Inc. NoNuke density gauge collected 360 points—97 of those behind the screed, before rolling. They used the Geophysical Survey Systems Inc. PavScan 2.0 RDM to gather 19,609 DPS data points—9,932 of those behind the SDX screed. An SSI Zero-Speed Inertial Profiler was driven along the project’s base and surface/wear courses. Collectively, these indicators and those on the pavers and compactors confirmed the results.

## By the Numbers

The measurable results in the chart on the next page documented the following advantages for the Cat SDX Screed Plate System compared to the conventional screed plates (CSP).

On many high-tonnage paving jobs, the difference between earning incentive payments or incurring penalty deductions can be razor thin. On the Highway 85 project,

*(Continued on page 14)*



- Heating elements are retained by the adaptor plates.
- Screed plate adjustments for leveling and angle-of-attack occur on the adaptor plates.

**4. Innovative Fastening System**

- The hardware-free locking system enables placement in as little as four hours after initial adaptor plate installation.
- Tapered blocks integrated into the screed plates fit over the beveled edge of the adaptor plates, and the plates are held in place with high-temperature silicone retainers that maintain tension for reliable performance.
- Scheduled downtime for screed plate replacement is minimized with this simple design.

To learn more about improving your outcomes with the new Cat SDX Screed Plates and how they can help you increase your opportunities to earn more and larger bonus payments where available on mainline paving jobs, contact the paving specialists at our dealership. ■



Central Specialties, Inc. consistently exceeded the thresholds with the Cat SDX Screed Plates.

**Benefits You'll Appreciate**

The Cat® SDX Screed Plate is designed to improve mat quality on your jobsites.

**1. Increased Density, Smoothness & Thermal Uniformity**

- Mixing action creates consistency across the width of the mat to help reduce standard deviations between density readings to meet Percent-Within-Limits (PWL) specifications.
- Increased mat stiffness leads to less shoving and better smoothness.
- The textured plate design promotes increased mat density and stiffer edge profiles for improved joint-matching and joint density results.

**2. Advanced Screed Plate Design**

- Cat SDX plates utilize cast chromium-alloy materials for durable properties that are designed to increase wear life compared to standard plate designs.
- Cat SDX Screed Plates are designed to run flatter when compared to traditional screed plates to help increase wear quality.
- The modular 100 mm (4") and 300 mm (12") plate designs simplify handling, transport, and installation.
- The 100 mm (4") center plates enable cross-slope and crown flexibility that provides versatility in a variety of application profiles.

**3. Simple Adaptor Plates**

- The aluminum adapter plates utilize existing structural design for easy retrofit from standard screed plates.

	Cat® SDX Screed Plate	Cat Traditional Screed Plate	Cat SDX Advantage
Density Behind Screed Plate-No Nuke	91.5%	89.8%	+1.7% Density Gain
Density After Roller Compaction (Final)-DPS	94.8%	93.6%	+1.2% Density Gain
Random Core Density Variation	92.0-95.8%	91.4-95.8%	Reduced Deviation
Standard Deviation (STD)-DPS	0.11	0.15	25% Reduction in STD
IRI Reduction (Inches per lane mile)-SSI	25.77 in.	23.26 in.	10% Smoothness Improvement
Failed Core Density	0	2	No Failed Cores

# IMPROVED PM300 SERIES COLD PLANERS

## MORE POWER, MORE TORQUE, MORE OPERATOR COMFORT

Multiple design enhancements improve performance, operator comfort and milling power on the updated Cat® PM310, PM312 and PM 313 Cold Planers. The PM300-Series excels in applications requiring a compact, highly maneuverable machine with high-production capabilities.

The improved PM300 models integrate the Cat C9.3B engine that delivers increased gross power and more torque, based on standard performance testing. With a gross power rating of 343 hp, the engine meets U.S. EPA Tier 4 Final emission standards. The engine features lower complexity and improved electronic, fuel and air systems.

### Performance, comfort upgrades

The latest PM300-Series includes a redesign of the transition flashing between primary and loading conveyors, improving material containment and reducing build-up on the machine's front frame. Additional material containment is achieved through feature enhancements to the right-hand side plate, chamber-to-conveyor sealing, and loading conveyor belt sealing.

The addition of an adjustable on-screen guidance line to the left-hand camera enables operators to track the cutting edge from either side of the machine. Ground personnel can now control the obstacle jump capability from the rear ground controls to



improve milling efficiency.

Optional wide-dispersion LED working and LED roading lights improve safety and visibility. Providing the ability to be stowed when not in use, an optional deflector redirects exhaust away from buildings and ground personnel to improve the working environment.

For more information about the improved PM310, PM312 and PM313 Cold Planers, contact our dealership or visit [www.cat.com](http://www.cat.com). ■

# MID-SIZED ASPHALT COMPACTOR UPDATES

## TECHNOLOGY & COMFORT ENHANCEMENTS BOOST PRODUCTIVITY



Updates to the Cat® CB7, CB8 and CB10 mid-sized asphalt compactors build on the proven performance of their predecessors with edge-management options, optional cab, optional split drums, and a new mapping display.

### Comfort and Performance

Features like spacious seating and legroom, unobstructed sight lines, heated seat, climate control functions, and AM/FM Bluetooth radio can help operators perform at their best all shift long.

### Edge Management Options

Proper management of unconfined edges can help optimize density and lead to better surface quality. The vertical edge created by the cut-off wheel helps provide a stable vertical face. Bevel-edge options provide sloped profiles for smoother transitions on and off the paved surface.

### Compaction Control Mapping

The new mapping display provides an enhanced on-screen visual for easier recognition and touchscreen capability for simplified setup. Cat® Compact helps operators visualize the coverage area while recording pass-count and temperature data.

### Turn On the Quality

Making tight turns on hot asphalt can result in mat tearing that can lead to quality issues. The dual split-drum option on the front drum can help eliminate tears when maneuvering around obstacles or when compacting tight turns by reducing the speed of the inner drum half. It's a great solution for parking lots, driveway approaches, and other applications that require frequent turning.

For more information about the CB7, CB8 and CB10 Mid-Sized Asphalt Compactor updates, contact our dealership or visit [www.Cat.com](http://www.Cat.com). ■

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