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January 2022

Industry Scoop

A publication for and about Roland Machinery Co. customers • www.RolandIndustryScoop.com



Aggrecon Ltd.

Wisconsin quarry operation produces everything from 200-mesh-screen sand to 48-inch rocks



Tod Pauly,
President

A Message from the President



Matthew L. Roland

**Informative
articles to help
your business**



Dear Valued Customer:

We applaud Congress for passing the \$1.2 trillion Infrastructure Investment and Jobs Act. The multiyear bill will provide much-needed funding for fixing aging roads and bridges, expanding public transit and internet access, modernizing the electric grid, and improving water and wastewater systems. It's a historic investment in our nation's infrastructure.

This edition of your Industry Scoop magazine features several informative articles designed to help you and your business. For instance, there is a quick how-to on installing and maintaining a breaker, a valuable tool that can increase your versatility.

Because it is essential to assess each of your projects in-depth, we offer several questions about practices, processes and operations that you may want to ask before, during and after a project.

For an industry continuing to face a shortage of workers long term, recruiting new personnel from Generation Z could be a good way to grow your staff. There is an article inside on what you can do to reach this critical audience and attract members of the iGeneration to your company.

We also highlight some new products, including the Komatsu WA480-8 yard loader arrangement that is designed to be a three-pass match for loading aggregate and other materials into on-highway trucks. It is great for infrastructure, forestry and non-residential applications, too.

If you need a big dozer, the new Komatsu D475A-8 may be the perfect fit with a re-engineered mainframe that targets twice the life of previous models and can withstand multiple rebuild/overhaul cycles.

Plus, now is a good time to consider doing the maintenance and repairs that you may have put off during the busy season. Our skilled service personnel can perform the work in a timely, cost-effective manner to help limit your downtime. Contact us for details.

As always, if there's anything we can do for you, please call one of our branch locations.

Sincerely,
Roland Machinery Co.

A handwritten signature in black ink, appearing to read "M. Roland", written over a light blue horizontal line.

Matthew L. Roland,
President

Industry Scoop



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Published for Roland Machinery Co.
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Printed in the USA.

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Samples lead to change in plans for Wisconsin dairy farmer as he turns land into a successful quarry operation



**Tod Pauly,
President**

Tod Pauly describes his Manitowoc County, Wis., quarry as a “happy accident” because the 160-acre Aggrecon Ltd. location was not originally planned as an aggregate operation.

“My intent was to start a dairy farm,” recalled Pauly. “When I looked at the core samples from the well report, I decided to change course. It showed that there were about 500 feet of limestone reserves. We started producing and shipping materials about two months after I purchased the property in 1986.”

Initially, Pauly had an outside contractor crush the materials, but Aggrecon has since taken on that responsibility. During the last 35 years, it has built a list of about 60 products.

“We produce everything from a 200-mesh-screen sand to 48-inch rocks,” said Pauly. “When we started out, we had mainly concrete customers taking washed material, and the specifications were not as stringent. In 1998, production of high-spec

materials began, primarily for asphalt road base. In addition to our common list of products, we make specialty unique blends. We try to manufacture anything that customers need.”

Asphalt and concrete companies remain major clients for Aggrecon. The company leases space to a concrete and an asphalt producer on its site. While they take a sizable percentage of Aggrecon’s material each year, Pauly pointed out that they are not always its biggest customers.

“It varies,” Pauly explained. “Large excavation contractors with development sites and roadwork lead some years. In others, it might be the asphalt company. It depends on the types of work happening in the area. We have a nicely balanced mix of accounts. That’s great for us.”

No matter who takes the materials, the customer picks them up with their own or hired trucks. Pauly said he has not entertained getting into trucking.

Aggrecon Ltd. uses a Komatsu PC650LC excavator and Komatsu HM400 articulated trucks for overburden removal after a Komatsu Business Solutions Group analysis set up by Roland Machinery Company. “They determined that decreasing slopes, modifying our roads, and using a combination of a PC650 and the haul trucks could improve stripping cycle times,” said Aggrecon President Tod Pauly. “It saved about a minute and a half per cycle.”





Operator Shane Henkel moves material in Aggrecon Ltd.'s quarry with a rebuilt Komatsu WA600. "We use it for various tasks, and it has plenty of power to do them all," said Henkel. "Even though it was rebuilt, it performed just like a new machine. It sped up our production."

"I don't want to compete with our clients," Pauly remarked. "I would rather focus on providing them with quality materials, and I believe that level of service has been a big reason for our success, along with having what I think is the best stone reserves in the area."

Roland Machinery, Komatsu help improve production

Pauly emphasized that Roland Machinery Company and Komatsu have played key roles in Aggrecon's increased productivity and efficiency during the past several years.

"They worked on the competitive brand of equipment we previously ran and supplied us with ground engaging tools," noted Pauly. "I contacted Roland about rebuilding two loaders. The numbers didn't add up, so they suggested purchasing a used Komatsu WA600 and rebuilding it. Because they had always given me good service, I trusted them. They took the loader down to the bare frame and fully rebuilt it with a new Komatsu engine, hoses, parts and components. I got a like-new machine at a fraction of the cost, and we have put more than 12,000 hours on it."

In the nearly seven years since Aggrecon's first Komatsu acquisition, it has worked

with Roland Machinery representatives, including Product Support Representative Brad Trembl and Parts and Service Manager Mike Schaper to purchase two WA500 wheel loaders, three HM400 articulated haul trucks, PC390LC and PC650LC excavators, and a D275 dozer.

"I'm a small operator, and yet Roland treats me like I'm just as big as any customer they have," said Pauly. "I can sit down with the people at Roland and talk about my future plans and needs, and they will help me."

"Roland has added to my growth," he continued. "One way they did that was by bringing in Komatsu's Business Solutions Group to do a study of our operations. They determined that decreasing slopes, modifying our roads, and using a combination of a PC650 and the haul trucks could improve stripping cycle times. It saved about a minute and a half per cycle. That equates to a whole lot more production per day, reduced operating costs and made our ability to move overburden more affordable."

Aggrecon uses the WA600 to move materials in the quarry. It utilizes the WA500s for the



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Continued...

'It's truly a one-man operation'

... continued

same task as well as to load trucks in two passes. Operators separate blasted rock with the PC390 and push materials with the D275.

Roland Machinery maintains Aggrecon's equipment through a service agreement. "With machines being more technically advanced, it's difficult to find techs to work on them. Roland has trained techs with the skills and knowledge to do it. They do an outstanding job."

Operator Tony Lisowe feeds a rented KLEEMANN MOBIREX MR 130i EVO2 mobile impact crusher with a Komatsu PC390LC excavator after setting up the crusher. "I can set the feeder speed and gap on the curtains to match the material size and go," said Lisowe. "I have a remote control, and if I need to adjust the feeder speed, I can from the cab of the excavator. I also use the remote to turn out the side conveyor and dump oversized material at the end of the day."



KLEEMANN crusher helps meet increased demand

Pauly noted that 2021 saw an increased demand for materials. To meet it, he rented a KLEEMANN MOBIREX MR 130i EVO2 crusher (a WIRTGEN GROUP product) from Roland Machinery. The mobile impactor has a capacity of up to 496 tons per hour.

"With washing requirements for some highway work, we needed to continue to make road base," Pauly said. "The KLEEMANN crusher interested me because I liked the ability to move the tracked plant right up to the shot and have an excavator feed it instead of transporting to a crusher from the quarry floor. The guys at Roland have been talking to me about trying one for some time, and this opportunity gave me the chance to do it. Everything they told me about it turned out to be completely true — the ease of starting up, moving it around and production. It's truly a one-man operation."

Operator Tony Lisowe, who ran both the PC390 excavator and the crusher, said the MOBIREX MR 130i EVO2 is easy to set up and operate. "In the morning, it's a matter of





An Aggrecon Ltd. operator loads a dump truck with a Komatsu WA500 wheel loader.

turning the key and following the steps on the machine's screen. It's smart. It won't let you do something wrong. I can set the feeder speed and gap on the curtains to match the material size and go. I have a remote control, and if I need to adjust the feeder speed, I can from the cab of the excavator. I also use the remote to turn out the side conveyor and dump oversized material at the end of the day."

Roland Machinery and KLEEMANN representatives both came out and trained Aggrecon to ensure the company completely understood how to get the most out of the machine. "They set us up for success," said Pauly. "The crusher helped us meet our road base needs while actually reducing our total net costs on a monthly basis for the combined operations."

Still in the 'opening stage'

Three decades after starting production, Aggrecon is still in its infancy, according to Pauly.

"We're only down about 65 feet right now and in the 'opening stage,'" explained Pauly. "We could be at this level for another 17 years before having to go down further. That doesn't mean we are not thinking ahead. Currently, we are designing a new



Roland Machinery Company representatives talk with Aggrecon Ltd. staff members, including President Tod Pauly (center) outside his office at Aggrecon's quarry in Kiel, Wis. "I'm a small operator, and yet Roland treats me like I'm just as big as any customer they have," said Pauly. "I can sit down with the people at Roland and talk about my future plans and needs, and they will help me."

pipeline and enlarging it so that when the time comes to go deeper, we are prepared.

"I think we are in good shape to continue doing what we do best, which is producing materials geared toward road base and construction," he added. "And, we will keep modifying our equipment to make better products." ■

Great Lakes Logging & Heavy Equipment Expo returns, Roland Machinery sponsors a large display of equipment



Matt Roland,
President, Roland
Machinery Company



Brandon Wheeler,
Forestry Sales
Manager, Roland
Machinery Company



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With nearly a dozen machines and multiple attachments, Roland Machinery Company and Komatsu had one of the largest displays at the Great Lakes Logging & Heavy Equipment Expo in Escanaba, Mich.

Thousands gathered at the Upper Peninsula State Fairgrounds in Escanaba, Mich., for the return of the Great Lakes Timber Professional Association's Great Lakes Logging & Heavy Equipment Expo after a one-year absence due to COVID-19. Roland Machinery Company, in conjunction with Komatsu, had one of the largest display areas with nearly a dozen machines and multiple attachments.

"This is one of the most important shows in the forestry/logging industry, and we continue to have a large presence because it shows Roland's commitment to customers in this area," said Roland Machinery President Matt Roland. "Komatsu is an innovator and continues to push the envelope in technology across its numerous product lines, including forestry. This gives us a chance to highlight that, as well as meet up with customers and friends. It's great to have the show back."

Roland Machinery and Komatsu showcased Komatsu Forest equipment, including a 931-6WD harvester equipped with a Komatsu C144 harvesting head and 845 and 875 forwarders. Additional forestry machines and attachments included an XT430-5 tracked feller buncher with a Log Max 7000XT felling head and an XT445L-5 with a Quadco head.

It also had a TimberPro TN725D harvester on display, as well as a Komatsu WA270-8 wheel loader with forks and a D39PX-24 dozer. TimberPro, Quadco and Log Max are Komatsu-owned companies.

"Our forestry customers deal with a mix of softwoods and hardwoods, and 90% of them in this area are geared toward cut-to-length logging," said Roland Machinery Forestry Sales Manager Brandon Wheeler. "Komatsu has a wide range of machines to meet their needs. The forestry machines on display have their obvious applications in harvesting, loading and moving logs, and we can help determine which ones are the best fit for their particular operations. The loader could be used in the woods, but is really a great machine for mills when equipped with forks or grapples. With low ground pressure, the D39PX works well for building roads."

Challenge features new 855-3 forwarder model

During the three-day Great Lakes Logging & Heavy Equipment Expo, Roland Machinery and Komatsu also sponsored the Great Lakes Forwarder Operator Challenge. More than 20 competitors raced against each other and the clock as they navigated a course with two new Komatsu 855-3 forwarders. The challenge included stacking and unstacking logs and stumps, loading and unloading the machines' bunks, and more.

The top prize — \$1000 and a VIP sporting event trip — went to Steve Anderson, owner and operator of Steve Anderson Forest Products. It was Anderson's third time winning the event.

"My wife and I haven't decided yet where we are going for the trip, but we really like college basketball, so maybe we'll go see a game," said Anderson, who currently runs an older 855 forwarder and a 931XC 8-wheel harvester. "We always look forward to coming to this show, and I really enjoy competing in the challenge."

Aaron Yoder of Lost Lake Logging took second, winning \$500. It was his third





Roland Machinery Company and Komatsu sponsored the Great Lakes Forwarder Operator Challenge. Steve Anderson of Steve Anderson Forest Products (left) took first place and won a VIP sporting event trip and \$1,000. Aaron Yoder (right) of Lost Lake Logging placed second and won \$500.



year competing, and he's placed higher each time.

"I have gone from fourth to second, so I'm moving up," said Yoder, who is a one-man operation and runs a Valmet (Komatsu-owned) 840.4 forwarder. "I really enjoy it and look forward to it."

Cutting Edge Forest Products' Alex Johnson was third, Terry Lynch of Sanville Logging was fourth, and Manley Murray of Steve Anderson Forest Products was fifth. Each won a cash prize.

Green Bay up next

The next Great Lakes Logging & Heavy Equipment Expo is scheduled for Sept. 8-10, 2022, at the Resch Expo in Green Bay, Wis.

"Roland has been a part of this event since 2003 when we bought another company that serviced this area," said Roland. "We expect to be at next year's event with the same or larger presence. We are already looking forward to it." ■



Roland Machinery Territory Manager Mike Lizenbee (left) and Gary Parker of Parker Logging check out the Log Max 7000XT felling head attached on the Komatsu XT430-5 feller buncher.

Capital infrastructure program management and delivery require a roadmap to digitalization



Balaji Sreenivasan,
Founder and Chief
Executive Officer,
Aurigo Software
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About the author: Balaji Sreenivasan has played a critical role in shaping Aurigo to be a modern enterprise cloud software business that is helping infrastructure owners plan and build over \$300 billion of capital projects more efficiently. Balaji spends his time on product strategy, customer delight, and enabling the amazing set of people at Aurigo to be their best.

American infrastructure has needed our attention for decades. We're reaping the consequences of years of neglect, and the roads, bridges, utilities and government buildings in our country are failing. In 2007, a Minnesota bridge collapsed during rush hour. Thirteen people were killed, and 145 were injured. Just this year, in 2021, a winter storm led to power outages across Texas leaving people stranded and freezing — and more than 200 dead.

Thankfully, Congress just passed a \$1.2 trillion infrastructure bill that will help us rebuild the failing parts of our infrastructure. However, with an exceptional amount of taxpayer funds designated for these projects, they must move according to schedule and stay on budget. Most capital construction projects are 20 months behind schedule and 80% over budget. This problem exists because current infrastructure departments and processes are obsolete and far behind in digitalization advancements.

To solve these critical issues, a digital transformation is needed. Most capital projects have been managed using paper documentation or out-of-date technology, but these methods cause essential information to be siloed across collaborating departments. Cloud-based, enterprise-level digital tools are

available for the management and delivery of capital programs across the planning, building and operating life cycle. These novel solutions make it possible for every project stakeholder to collaborate in one system, providing a single source of truth for the years-long, billion-dollar projects that exist in the infrastructure market.

Digitalization will increase transparency and ensure that government entities direct the correct amount of funding to the most important projects. With an enterprise-level, cloud-based platform, every step of the project is simplified and streamlined. Manual spreadsheets and paper documents cannot support the complex projects that will come as part of this new infrastructure initiative. In-house project management software is too time-consuming to develop and will likely become less functional, or even obsolete, by the time a project nears completion. The shift to digitalization will allow capital project owners to easily identify critical problems or delays along the capital program life cycle. This will reduce time wasted on reworking and maximize the project's overall efficiency and performance.

The entire project process will be expedited when digital tools are in use. Electronic approvals enable greater safety, security and adherence to industry standards. Managers can ensure that each element of the project goes according to plan, and each stage can be approved in a timely manner to keep projects moving forward.

Digital-first solutions are highly configurable, which allows administrators control to customize applications to each project's unique specifications. They can also keep projects on track, reduce time for approvals, and are easier to audit when the project is completed. Mobile-optimized capabilities are additionally an essential advantage for stakeholders who spend the majority of their work hours on-site and out of the office, so decisions and approvals can take place out in the field in real time.

With digital tools at the ready, and efficient processes in place, capital project owners and managers can build a better future to support the American dream for generations to come. ■

With an enterprise-level, cloud-based platform, every step of the project is simplified and streamlined.



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Starting a new project? Ask these questions first

All construction projects have unique considerations, but there are several common questions you can ask yourself that will help you plan, execute and learn with each one. Here are five important questions to think about when working on a new project.

Do I have all the data I need to put together an estimate and bid the job?

Having a set of plans doesn't always tell the whole story. To set yourself up for success, it's critical to have a thorough understanding of what the job site looks like before you ever think about submitting a final bid. Site owners, developers and general contractors will often have a walk-through prior to the bid date. Attend the walk-through meeting so you can see the actual conditions and elevations and determine if there are items on-site that are not on the blueprints or documents. Those will need to be addressed and considered as part of your bid.

A site visit gives you a chance to ask questions as well. If there is something at the site that is not listed on the plans — such as a small pile of concrete — you can determine who is responsible for its removal or if it should somehow be incorporated into the sitework. There will be a cost, whether you are hauling it off-site or repurposing it, but the difference in your final estimate could be significant.

Asking questions to ensure you have enough information to estimate and bid a project is critical, and so is learning from your practices and people.

Are the machines I have really the best ones for this job?

Think about this question before you put the blade or bucket into the ground. Using the proper machinery for a job is important. It doesn't make sense to bring a tight tail swing excavator to a wide-open job site where mass amounts of material need to be moved quickly. Conversely, a standard excavator is not practical for confined spaces, such as digging against a building or in a lane of traffic.

Improperly equipping the project leads to frustration, lack of productivity and probably decreased profits. If you don't have what's needed for a particular aspect, consider renting. This allows you to get the job done without a long-term commitment to machinery you only need for a short amount of time.

Am I leveraging and maximizing technology?

From initial GPS grading systems to software that replaces traditional pen-and-paper estimating, construction technology has grown considerably. That technology is allowing companies to track every phase of a project digitally and share that information with all relevant parties — owners, contractors, etc. Job site management software and apps are abundant and save time and paper costs.

In addition to using the information to adjust practices on current jobs, it can be used for more competitive and accurate bidding and project management on future projects. You can also use data from the machines themselves. Nearly all new Komatsu machines have telematics that deliver production-related information, such as hours moving earth versus idle time, modes used and more. This data can be used to track job site practices and ensure operators are using the machines and matching them to the materials and applications necessary to help maximize efficiency and productivity.

Telematics let project and fleet managers see the information remotely in near real time, so they can make faster decisions if changes are needed. There are also applications available through desktop and laptop computers, as well as by smartphones and tablets, that let you make plan changes and see what operators see remotely, saving you time and the expense of driving to the job site.





There are various ways to determine if you are on schedule and profitable. In addition to traditional site visits, you can use technology from telematics and remote applications to track progress in near real time from almost anywhere.

Today's machines are more technologically advanced, too. Remember those early days of GPS grading when you needed bolt-on components that got damaged and had to be taken down and put up every day? They are still around, but might not be for long. New equipment now has that technology built in.

What am I learning from the project?

There is an adage, "If you are not growing, you're dying." In business, that does not have to mean adding employees or equipment, or taking on larger jobs. Growth can come from learning more productive and efficient ways to complete jobs.

With technology, you don't have to physically be on the job site to track production or rely on timecards and anecdotal information to see if your schedule and budget line up. Learning to use technology and apply data to job site practices more quickly is a great way to "grow."

What do I do with my profits?

There are many ways to use the money you make from projects. Some suggestions include using the profits to grow your business, paying down or refinancing debt, investing in your staff, or saving for a rainy day. It's always a great idea to talk to your financial adviser to determine what's best for you and your business.

"... you don't have to make all-or-nothing decisions about what to do with your cash once your company reaches the black," according to the article "5 Things to Do With Your Small Business Profits." "You may choose to leave some cash in the company to increase its value, pay a dividend or give your employees raises. You could buy a new piece of equipment and increase your own salary. It's up to you and your goals for running your business. Being in the black just means you have a lot more choices and opportunities." ■

Editor's Note: This information is excerpted from a longer article. To see it in full, scan the QR code or visit <https://www.komatsu.com/en/blog/2021/starting-a-new-project-ask-these-questions-first/>



Are you prepared for low temperatures? Here's how to winterize your excavators

No matter where you operate, cold weather could potentially affect your job sites.

Preparation ensures your excavators are protected, so they can continue to give you good production or are properly stored against the elements.

Fluids are the lifeblood. As temperatures drop, switching to a winter-blended diesel fuel helps protect your engine and its components. Traditional diesel tends to gel and develop condensation in colder temperatures and can freeze if there is too much water in it. High water content can also cause filters to freeze, expand and burst. Also, be sure to drain off fuel tank water and sediment.

Newer machines that use diesel exhaust fluid (DEF) need special attention, whether you're using them or storing them long term because DEF freezes below 32 degrees Fahrenheit. Before shutting down for the day — or for months — it's essential the automatic DEF line is purged to ensure that the lines are empty. This

helps prevent expansion that could damage system components.

All fluid levels should be checked consistently to ensure they are at proper levels. It's recommended that you use a low-viscosity oil and coolant with a freeze level protection rating that won't freeze and cause major damage to the engine or other systems.

A block heater may be another consideration during overnight parking.

Keep batteries charged. Cold weather stresses batteries, and they should be inspected for damage prior to winter usage and replaced, if necessary. If you plan to use your excavator, make sure the battery is fully charged. If it's not sealed, check that the water and acid levels are properly filled.

If you're parking the excavator long term, be sure to check the water/acid levels. Maintenance-free batteries should be fine. It's very important that the battery

Preparation plays an important role in your excavator's production during the cold winter months. Always use the proper fluids, keep the battery charged and the tracks clean, and ensure cab features that control operator comfort are working.





Inspecting your machine before operating should be done in all weather conditions. In especially cold weather, pay close attention to hoses and belts, fluids, the battery, and the tracks.

disconnect switch is turned off when storing the machine for a long period of time. Consider removing the battery and putting it in a temperature-controlled climate to prolong its overall life.

Visual inspections are important before startup. Before operating, make sure to do a thorough visual inspection of the machine to check for any irregularities, and address them before starting the machine to prevent potential damage. Let the machine warm up to proper operating temperature and cycle through functions to allow fluids to move before digging or other applications.

Keep track of the undercarriage. Pay special attention to your excavator's undercarriage during cold conditions. Brush off any snow that may have accumulated overnight or during breaks before entering the machine to reduce the chance of slipping. It's especially vital to keep tracks cleaned, as frozen mud and debris causes problems with the undercarriage and the seals and housings of the final drives. It

prevents the rollers from turning during travel, which causes flat spots on the carrier and bottom rollers.

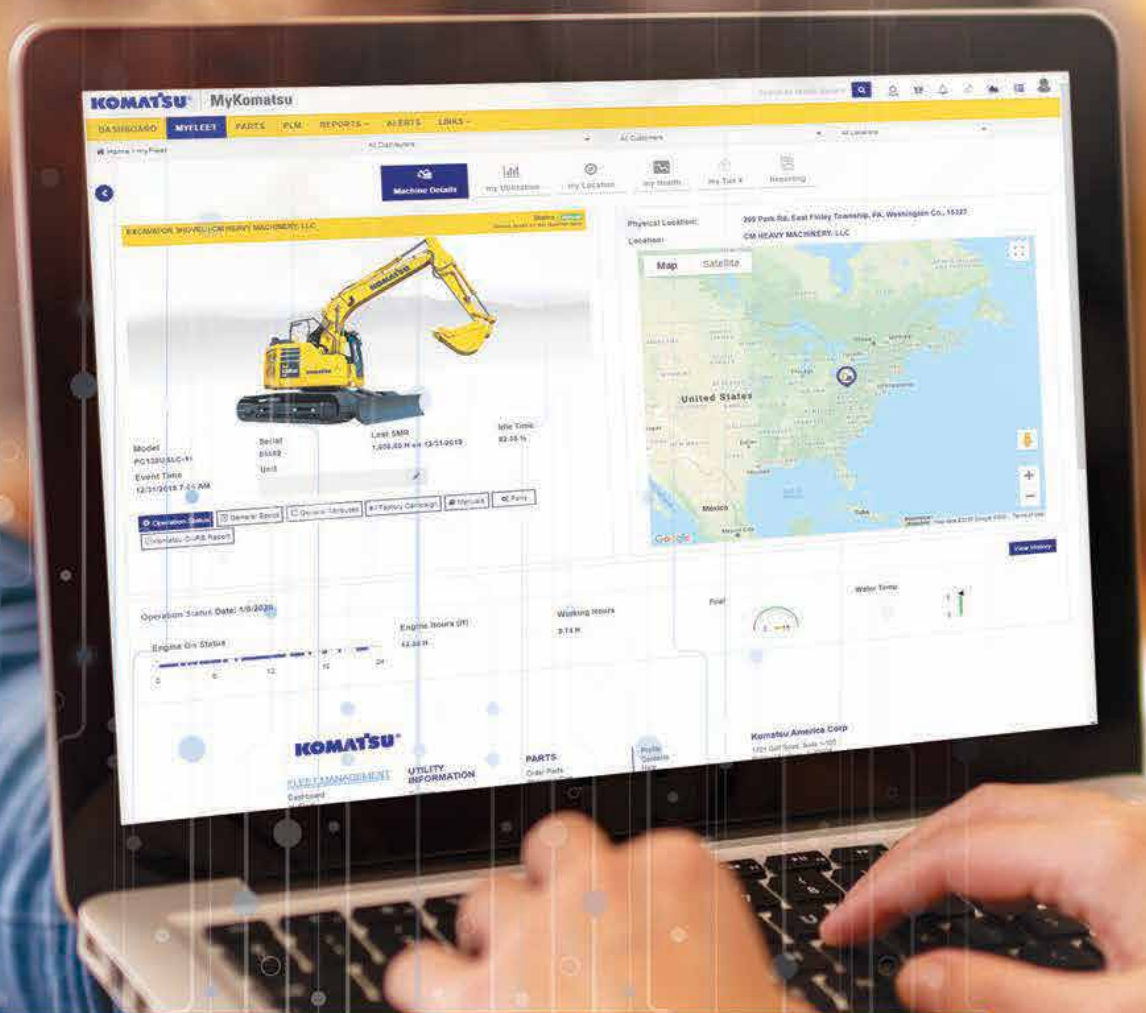
Extremely cold temperatures can cause tracks to freeze to the ground. To prevent this, if possible, park your excavator on timbers, small pieces of wood in forest areas, or another barrier when not operating.

Don't overlook the cab. Cabs are often an afterthought when it comes to cold temperatures, but they shouldn't be. To keep operators comfortable, ensure that the heater is in proper working order, as well as the heated seat if the excavator is equipped with one.

When storing the machine, give the cab a thorough cleaning and remove any debris, especially food-related items. Inspect it to make sure there are no holes or missing filters and that the doors seal properly. Doing so helps keep pests such as rodents from nesting and potentially destroying the operator's cab. ■

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Want a versatile loader with the capacity to load highway trucks quickly?

Loading and moving materials in as few passes and cycles as possible not only helps increase productivity, but it also reduces costly wear and tear on machines. One versatile machine that offers that across multiple applications provides a distinct advantage.

"The WA480-8 yard loader arrangement is designed to be a 3-pass match for loading aggregate and other processed materials into highway trucks," said Adam Braun, Komatsu product marketing manager. "It is also adaptable for use in infrastructure, forestry and non-residential construction applications."

A host of new features contribute to its high production in truck loading, carrying, stockpiling and hopper charging applications. Among them is a Komatsu designed, 7.2-cubic-yard bucket with curved side edges built to minimize spillage. Its internal space and shape provide smooth material flow, and the long bucket jaw and decreased strike plane angle results in easy fill and low resistance during pile penetration. Operators can easily see how much material is in the bucket with the integrated load meter system in the cab.

More than 1,400 pounds of added counterweight compared to a standard WA480-8 gives the yard loader arrangement the ability to handle increased bucket capacity and improves stability. Low-profile tires with increased ground contact and new heavy-duty front and rear axles provide additional stability. The front and rear frame have been redesigned on the yard loader arrangement with an increased diameter for a larger center hinge pin that connects the two.

Added productivity features include excellent visibility to the pile and surroundings, an easy-to-operate Advanced Joystick Steering System (AJSS), and a comfortable air-suspension seat. Outside the cab, there are front frame steps, a folding left-hand mirror, tie off points and a front cab grab rail.

Maximized brake life

Another highlight of the WA480-8 yard loader arrangement is the new highly efficient air-cooled braking system designed to

maximize brake life in extended load-and-carry or high-speed applications. The dedicated system enhances higher cooling efficiency even in tough environments. In severe test conditions, the cooling system demonstrated a 56 to 58 degree Fahrenheit better cooling effect.

"Stable cooling performance under high duty cycle operation reduces the risk of hydraulic oil overheating," said Braun. "The electric drive pump has a sensor that senses the axle temperature and activates only when needed." ■



To learn more about the new WA480-8 yard loader arrangement, visit <https://www.komatsu.com/en/products/wheel-loaders/large-wheel-loaders/wa480-8/>



Adam Braun,
Product Marketing
Manager, Komatsu

Komatsu's new WA480-8 yard loader arrangement is designed to be a 3-pass match for loading aggregate and other processed materials into highway trucks. It features a 7.2-cubic-yard bucket with curved side edges built to minimize spillage. A highly efficient air-cooled braking system helps maximize brake life in extended load-and-carry or high-speed applications.



New Komatsu D475A-8 mining dozer features re-engineered mainframe, delivers higher levels of production



Joseph Sollitt,
Senior Product
Manager, Komatsu

For more information
about the new D475A-8,
visit <https://www.komatsu.com/en/products/dozers/surface-mining-dozers/d475a-8/>



On mining sites, support machines like dozers can directly impact productivity by keeping blasting, loading and dumping areas clean, enabling loading and hauling equipment to work more efficiently. If your operation needs a versatile mining dozer that can go from ripping solid rock to cleaning up around a dragline, the new Komatsu D475A-8 may be the right fit for you.

Using extensive customer feedback, Komatsu re-engineered the D475A-8 mainframe to target twice the life of previous models — now 60,000-plus hours — and withstand multiple rebuild/overhaul cycles. Its low center of gravity provides machine stability, and long and consistent track on ground length offers more traction, pushing power, ripping efficiency and less shoe slippage. Track shoe slip control automatically controls engine speed and minimizes slip during ripping.

Added horsepower (890 net hp forward, 968 net hp reverse at 2,000 rpm) can help provide faster ground speeds, shorter cycle times and more production per hour. The D475A-8's high horsepower in reverse means the lock-up converter stays engaged more frequently, allowing significantly higher levels of production, especially when pushing down slopes.

"Automatic gearshift mode allows the powertrain to automatically engage the torque converter

lockup clutch," said Komatsu's Joseph Sollitt, senior product manager. "Locking up the torque converter reduces parasitic losses within the converter and transmits engine power directly to the transmission, increasing ground speed. That achieves efficiencies comparable to a direct drive and decreases fuel consumption up to 10% compared to manual gearshift operation."

Blade increases efficiency

Operators can boost efficiency by utilizing blade auto-pitch mode, which is designed to increase dozing efficiency while reducing the amount of operator input required. The all-new blade support structure is designed to significantly reduce blade side sway. The dozer also has enhanced visibility to the blade.

Improvements to the cab make the D475A-8 more comfortable to operate throughout long shifts. Ergonomically placed touch points and palm control joysticks make operation easier. Additional comfort features include improved visibility to the ripper shank, a rearview monitoring system and a heated, ventilated air-suspension seat. The redesigned undercarriage reduces shock and vibrations when the dozer travels over rough terrain.

"It is engineered to minimize downtime," Sollitt noted. "Maintenance is efficient with centralized grease points, a ground-level fluid service center, and battery and starter isolators with lockout/tagout functionality." ■

The D475A-8's re-engineered mainframe targets twice the life of previous models — now 60,000-plus hours — and withstands multiple rebuild/overhaul cycles. It has added horsepower that contributes to increased production and a blade auto-pitch mode designed to increase dozing efficiency.





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The top reasons robots are suited for construction work, and what's holding them back

Could robots, smart systems and automated processes someday soon control the full operation of a construction site? Would it make the job of a project manager easier or harder in the short term? Long term?

Numerically, there are some clear wins for productivity when you leverage the repeatability of a robotic element to get work done, versus the variability of human work. For example, using a conveyor belt, robotic arm and concrete pump, Construction Robotics' SAM100 (Semi-Automated Mason) can lay 3,000 bricks per day as it works alongside a mason. A human bricklayer typically averages around 500. So, does that mean a crew of SAMs can or even should replace a human crew? Not any time soon, according to one expert.

"We don't see construction sites being fully automated for decades, if not centuries," Zachary Podkaminer of Construction Robotics, the New York-based company that developed SAM, told *Digital Trends* in 2017. "This is about collaboration between human workers and machines. What SAM does is pick up the bricks, put mortar on them, and puts it on the wall. It still requires a mason to work alongside it. SAM's just there to do the heavy lifting."

Robotics use in construction continues to make headway, though, as technology rapidly advances, and the need for new solutions to worker shortages remains strong. In limited instances, automated or semi-automated devices are already working alongside humans.

Nils Napp, an assistant professor at Cornell University's School of Electrical and Computer Engineering, and his students are studying

robotics for building and other applications. He said these examples of "cobots" — robots that are built to work alongside humans — are good at what they do, but they have limitations.

"Right now, SAM and others like that are useful at one thing," Napp pointed out. "Programming them to move on to a completely different function is a challenge that will have to be overcome. There is a lot of really cool theory on robot construction, such as using a large swarm of termite-inspired bots that work together to build a structure. In practice, application is difficult because the assumptions you need to make in order to develop the theories end up being really hard to map on physical robots."

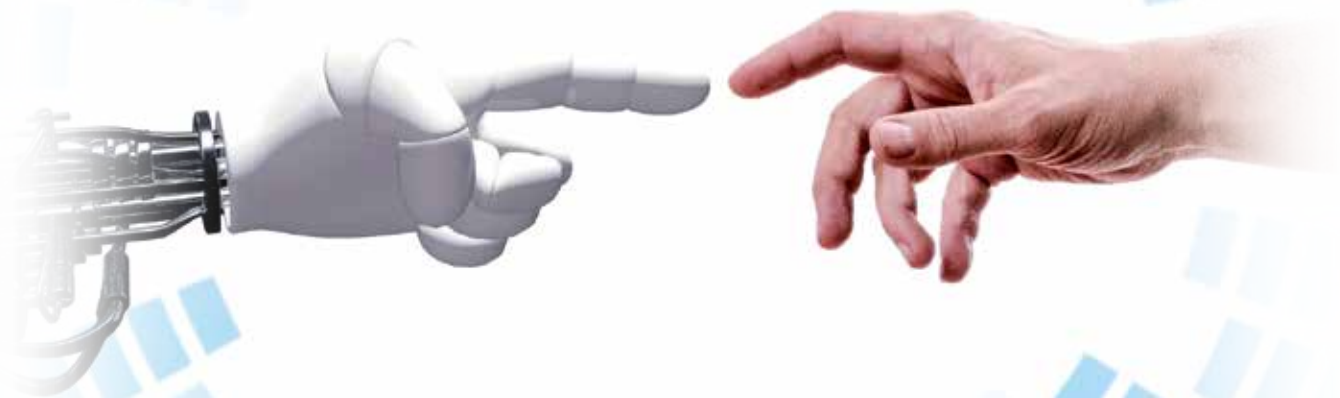
That may change as technology advances, according to Will Knight in *Wired*. The article talks about a robot drywaller built by Canvas that scans unfinished walls using lidar (light detection and ranging) or what's sometimes referred to as "laser scanning" and applies joint compound.

"It has long been impractical to deploy robots at construction sites because the environment is so varied, complex and changing," wrote Knight. "In the past few years, however, advances including low-cost laser sensors, cheaper robotic arms and grippers, and open-source software for navigation and computer vision have made it possible to automate and analyze more construction."

Increasing automation, analysis

Drones are also gaining prominence. Construction businesses are using them for tasks such as surveying, building models, tracking progress, recording data, billing,

Robot and human interaction is increasing in construction, but it is unlikely that robots will fully replace their human counterparts any time soon, according to industry experts.





Automation between humans and machinery is increasing job site efficiency. Drones and GPS technology are among the technologies making it happen.

measuring stockpiles and more. Drone usage in the construction industry has grown about 239%, according to a recent estimate.

Increased safety is another benefit of drone technology. Inspections in hazardous and/or remote areas can be done without putting personnel in harm's way.

"Simply put, drones enable us to provide needed views that are inaccessible, or otherwise too risky and expensive to capture by any other means," said Ryan Holmes, program manager of unmanned aircraft systems (UAS) for Multivista, in the ForConstructionPros.com article "Six Factors to Consider When Adding Drones to Your Construction Business." "We are using drones to help anywhere, from assessing land clearing and earthwork, insurance coverage, inspections, through to project completion and maintenance thereafter."

Proven and emerging technology

After site work has been done to prepare building pads and parking lots, robotics can come into play in building construction itself with 3D printing that allows machinery to be programmed to create practically any shape. A 3D-printed, two-story house recently won the German Design Council's German Innovation Award for its social, ecological and economical sustainability.

The house was printed with a mortar specifically designed for 3D printing by HeidelbergCement. "The printing of the residential house in Beckum is a milestone for 3D concrete-printing technology," said Dr. Jennifer Sheydt, head of engineering and innovation for HeidelbergCement. "We are convinced that this new type of construction will become an established standard in the years to come."

How many years down the road will depend on several factors, according to Napp. Among them are trust, acceptance and an open mindset to different building materials, such as double-insulated stacking blocks that he believes would optimize automation.

"Autonomous machines and GPS earthmoving are proven to work," Napp said. "A 3D-printed structure is also proven. An entire structure built by robots is different because you have to trust that the robots are correctly joining plumbing pipe and connectors so that they don't leak, for instance. We have that with humans. For now, the questions are there, such as would they meet code, can you even get a permit, are they fire and earthquake tested? If those, and others, can be overcome, then I believe there will be faster movement toward acceptance and someday having fully or near-fully robotic construction sites." ■

Editor's Note: This article is excerpted from a longer piece. For the full article, scan the QR code or visit <https://www.komatsu.com/en/blog/2021/top-reasons-why-robots-are-suited-for-construction-work/>



Quick surface creation lets you perform simple operations with your iMC 2.0 dozer without digital plans



Ron Schwieters,
Senior Product
Manager, iMC and
Hardware, Komatsu

Moving dirt with little or no staking and surveying has become much easier with integrated GPS grade control. Simply upload 3D data, perform a short calibration, and you're ready to strip, push, place and grade materials.

However, what if you have a task that's not in the plans? Perhaps you want to create a level surface for a job site trailer, or it's about to rain and you want to make sure water drains to a certain area.

"Even without plans, you can easily get simple jobs done in short order with the quick surface creation feature on new iMC (intelligent Machine Control) 2.0 dozers," said Ron Schwieters, Komatsu senior product manager, iMC & hardware. "It lets operators easily create a temporary design surface."

Quick surface creation on Komatsu intelligent Machine Control (iMC) 2.0 dozers lets you create a surface in a few easy steps without plans. "This is a great tool for times when there is no 3D data available," said Ron Schwieters, senior product manager, iMC & hardware for Komatsu. "You can use it for a wide variety of tasks, including stripping topsoil and haul road cleanup. It's another way to utilize and maximize your investment to the fullest."

To use quick surface creation:

- Lower the blade to the ground or target elevation.
- Press the "quick surface creation" button on the monitor. Values are entered automatically based on your current blade position.
- Adjust values, if desired. When you are ready, press "OK" to set the temporary design surface. The "quick surface adjustment" button will display.
- Move material.

Easy adjustments

You can adjust the temporary design surface parameters by pressing the "quick surface adjustment" button. Touch the desired parameters to be modified and adjust accordingly.

"This is a great tool for times when there is no 3D data available," said Schwieters. "You can use it for a wide variety of tasks, including stripping topsoil and haul road cleanup. It's another way to utilize and maximize your iMC investment to the fullest." ■



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Expert advice on how to make sure your breaker performs its best

A breaker can be one of the most valuable tools in a construction or quarry company's equipment fleet because it allows you to break up hard materials for excavation, perform demolition of buildings and roads, and break large rocks into manageable sizes for a crusher to handle.

If you are purchasing a new excavator and you think that you will use it with a breaker, consider having the machine set up at the factory with the necessary plumbing to run the attachment. If you are adding a breaker later, have a distributor/dealer technician perform the work because they have the skills to properly set the flows and pressures, and ensure lines are the right size to handle them.

Grease is the lifeblood

Operators or service personnel should be vigilant about grease. Using the proper amount of high-quality grease and putting it on correctly reduces friction wear on the tool and the bushings. Breaker tools become extremely hot, so the grease you use should be rated to work at temperatures of at least 500 degrees Fahrenheit. Use a good grease with, at minimum, a No. 2 lithium base containing 3% molybdenum. Molybdenum is crucial because it helps the grease stick to the tool and not run off.

An automatic lubrication system set to automatically grease during operation can help ensure the breaker remains greased. When purging the lube system a hand grease pump is best. Pump grease into the grease line until a steady stream of grease appears inside the hammer's upper and lower bushing lube holes. Remove the handpump and reattach the grease hose to the breaker lube line.

Inspect consistently, replace worn components immediately

Inspections are an essential part of keeping your breaker in proper working order. A daily walkaround performed before operation, and periodically throughout the day, should be part of an operator's routine as they check for leaks, cracks or loose hardware. A more comprehensive inspection should be done at least every 40 hours of operation and sometimes at shorter intervals, depending on the material you are working with. It's also recommended that you take the breaker in annually for a rebuild to have wear components replaced and the unit resealed.

"If you take care of your breaker, it can take care of you," emphasized Greg Clinton, attachment product support manager, Komatsu. "Once you and your distributor have determined which one is right for your operations, make sure it's properly installed, then inspected and maintained regularly. If you do that, you can help increase profitability and your return on investment." ■

For more detailed information about breakers and how to properly use and maintain them for long life, visit <https://www.komatsu.com/en/blog/2021/how-to-help-keep-your-breaker-performing-at-its-best/>



Greg Clinton,
Attachment Product
Support Manager,
Komatsu

Breakers can be valuable long-term assets if properly sized, used, installed and maintained. "If you do that, you can help increase profitability and your return on investment," said Greg Clinton, attachment product support manager, Komatsu.



Looking for new talent? Tips to attract and retain Gen Z, the iGeneration

The construction industry is undergoing a transformation in its use of technology, and it's a change that could help far beyond the work site. For an industry continuing to face a shortage of workers long term, using technology to reach, recruit and retain our next generation of employees (right now, the target is Generation Z or "Gen Z") is a logical way to boost interest in construction careers. So, what can and should you be doing to reach this critical audience, and how can technology help bridge the gap?

Gen Z now makes up 30% of the global population and a quarter of the workforce. Born between 1996 and the early 2010s, these digital natives grew up during a time of rapid technological advancement and have never known a world without the internet. They embrace technology and look for businesses that do the same. Recent statistics show that 91% of Gen Z says that technology sophistication would impact their interest in working for a company.

"This generation is more adept at communicating than any that ever existed before," wrote Charlotte Nicol in the article "5 ways to attract and retain Generation Z talent." She notes that this generation has been using instant messenger applications,

social media and email since they were quite young. They've been honing their written communication skills for most of their lives, and it makes them "extremely valuable, especially in roles that require a high level of communication such as customer service, sales and marketing."

Use 'culture' technology

To promote your company and recruit new talent, turn to Gen Z's preferred social platforms, which include TikTok, Instagram, Snapchat and YouTube. Studies show that Gen Z spends nearly three hours per day on social media, which is more than any other generation. If you're looking for new recruits, it's imperative to have a strong social presence.

"Company's talent attraction efforts must be as digitally native as Generation Z," said Ryan Jenkins, Generation Z speaker and generations expert, in an article for *Inc.* He went on to say that "to reach next-generation talent pools, disrupt the prevailing models of talent attraction by using innovative technology." He encourages companies to have a strong presence on Indeed, LinkedIn and other top recruiting websites and mobile apps so that Gen Z can "discover their ideal employers."

Social media is a valuable recruitment tool because of its ability to target preferred candidates, wrote Albert Galarza, a member of Forbes Human Resources Council, in *Forbes*. He noted that beyond recruiting, social media can also support employee advocacy, in which your employees can help promote your company through their own channels. "By encouraging Gen Z workers to share content about your workplace culture and tagging it with a custom hashtag, you can attract other Gen Z candidates and continue to grow your talent pool."

Embrace work-from-home, remote tech

Companies that allow and trust employees to work remotely — at least some of the time, where possible — can be more attractive to younger generations. Over the past year and a half more people worked from home than

Technology that allows employees to work from home can be appealing to Generation Z.





Training tools that simulate operating equipment and other processes that use virtual reality and artificial intelligence are becoming more popular. Many in Gen Z grew up playing video games with similar characteristics, so they are adept with that kind of technology.

ever before because of the global pandemic. The move to work from home (WFH) showed that productivity doesn't suffer outside of the traditional office workspace. The cloud, virtual private networks and other technology, along with Wi-Fi and mobile devices, make this possible. While not feasible for field personnel who must run machinery and install utilities, the opportunity to WFH might be an incentive for traditional office and IT jobs, as well as other workers who only need to be on-site occasionally.

Technology to train

Using technology to train could be a selling point for many Gen Z workers and ease their onboarding. They are very "digitally literate," so using computers, simulators and/or virtual reality (VR) as training platforms makes sense and helps frame your company as modern.

"VR technologies are far beyond the stage where it's only gaming that can benefit from them," Catherine Strohanova, an expert in virtual reality applications, wrote in "4 Ways to Use Virtual Reality in the Construction Industry." "Virtual reality is slowly but steadily taking root in major industries like

the oil and gas sector, and the construction specialists have also found several beneficial ways of using VR."

Construction-specific technologies

Don't underestimate the value of an increasingly tech-enhanced site, as well. For a generation that grew up playing video games and maybe even got a drone for Christmas in the past 10 years, today's digitally enhanced work is an evolution from what some may view as a more traditional career choice.

New recruits will of course have to take the necessary courses and tests to become licensed pilots before they fly a drone over a site, but learning new technology hardware can be appealing to Gen Z.

Today's construction equipment is more sophisticated and technologically advanced than ever with bolt-on and built-in technology that captures data and uses it to control the machine. This technology virtually eliminates staking, saves time and material costs, and lets novice operators perform productively faster. While they still must learn how to properly move dirt, the machines offer the advantage of taking the guesswork out of getting to grade. ■

Editor's Note: This article is excerpted from a longer piece. To see it in its entirety, scan the QR code or visit <https://www.komatsu.com/en/blog/2021/tips-for-attracting-and-retaining-gen-z/>





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Design feature makes a difference in production

While you probably know that intelligent Machine Control (iMC) dozers, such as the D71i-24, can make operators more efficient, did you know that a simple design feature makes all of the D71-24 models more productive?

Komatsu specifically matched the blade width to the track gauge to ensure material is always cast outside the edges of the tracks for an optimal surface finish. Additionally, new performance features include greater steering power for improved maneuverability and productivity.

Insider Tip: "The D71-24 lets you cover multiple applications with one machine — from stripping, to pushing large loads, to finish grading — cutting your need for multiple pieces and saving you time and costs," said Andrew Earing, product marketing manager. ■



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