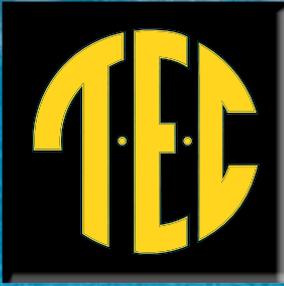
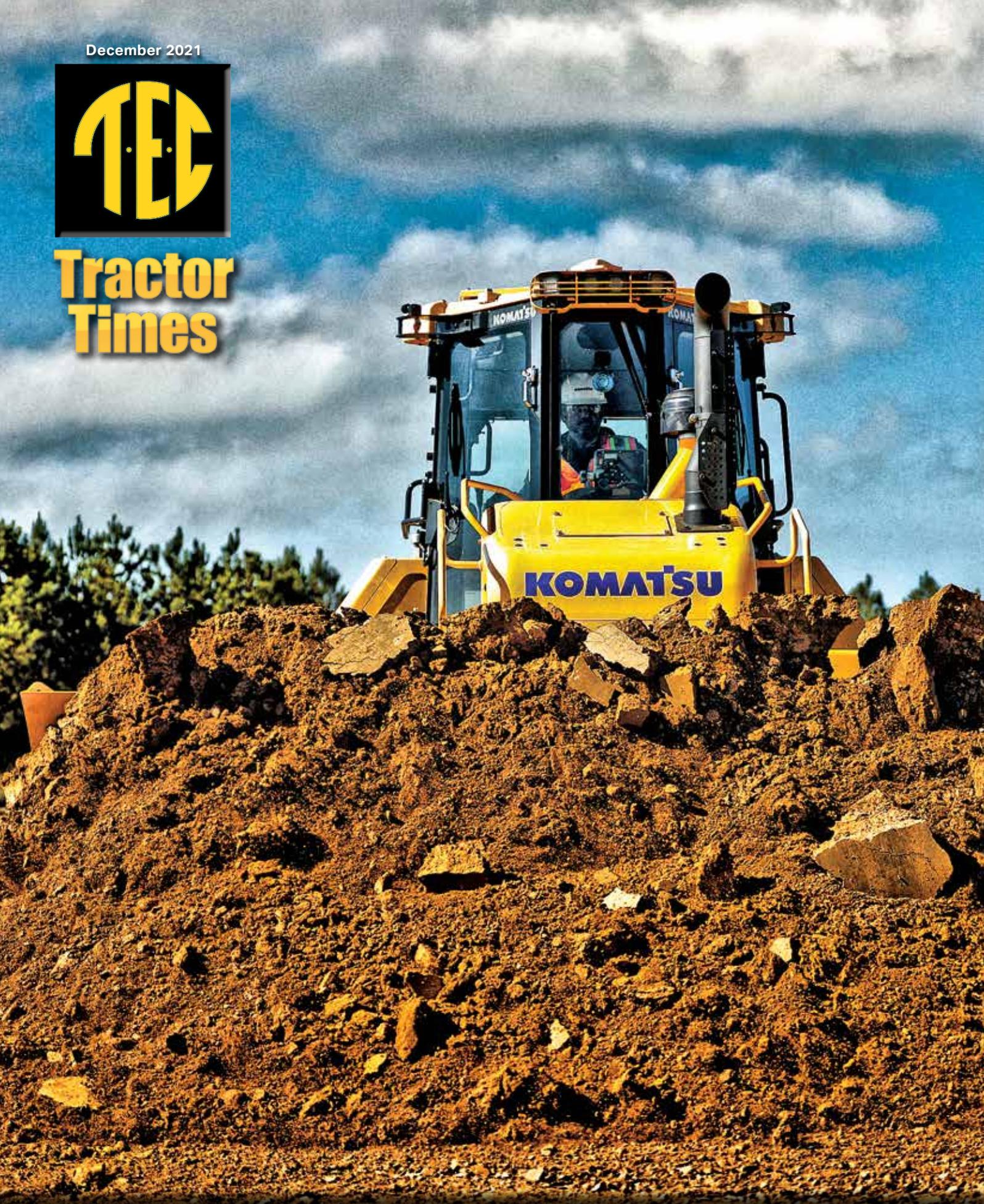


December 2021



Tractor Times



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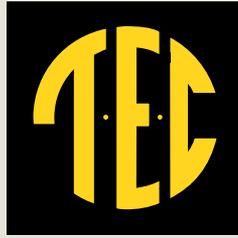
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A Message from the President



Chad Stracener

**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 Tractor Times 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.

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 or stop by one of our branch locations.

Sincerely,

A handwritten signature in black ink that reads "Chad Stracener". The signature is written in a cursive, flowing style.

Chad Stracener
President



In this issue

Triple B Land Services LLC pg. 4

Meet 21-year-old Ethan Bragg, whose company takes on projects ranging from ponds to house pads in the Sylvania, Ga., area.

McElhenney Construction Company LLC pg. 8

Read about the company's current project: a boat launch for Baldwin County, Ala., that is set to be completed by March 2022.

Guest Opinion pg. 12

Understand the importance of a digital transformation within capital infrastructure program management, according to Balaji Sreenivasan.

Critical Answers pg. 14

Ask these questions when starting a new project.

Quick Tips pg. 16

Learn more about quick surface creation, which lets you perform simple operations with your iMC dozer without digital plans.

High-tech Trades pg. 18

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

New Product pg. 21

Check out the new Komatsu WA480-8 yard loader arrangement, a versatile machine that helps increase productivity.

Product Spotlight pg. 22

Take a look at Komatsu's new D475A-8 mining dozer that features a re-engineered mainframe and delivers higher levels of production.

Cold Weather Considerations pg. 24

Discover how to prepare your machines for the winter.



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Triple B Land Services LLC ambitiously takes on projects ranging from ponds to house pads



Ethan Bragg,
Owner

At 21 years old, Ethan Bragg is already the successful owner of Triple B Land Services LLC, a company he established in 2019. Based out of Sylvania, Ga., the company tackles projects ranging from land clearing to preparing house pads.

"I grew up around heavy equipment and started working on my family's farm when I was eight years old," recalled Bragg. "When I turned 16, I started working for a lawn care company. The business opportunities got to the point where I was able to purchase some larger equipment and tackle bigger projects. That's when I started Triple B Land Services."

Establishing a company at the beginning of a pandemic was less than an ideal situation for Bragg. While many of his peers questioned his decision, Bragg was confident the business would succeed.

"Part of what's driven me has been proving everybody wrong," stated Bragg. "We haven't had a slow moment since starting business. We're up to six employees, and our jobs are typically within a 60-mile radius. We love to be in the dirt working."

"We've established a reputation for doing timely, quality work," continued Bragg. "That involves a lot of long, hot days and hard work. I live by my word, and when I say I'll do something, I make sure it's done right the first time. There's a satisfaction in driving by a project I worked on and knowing that I did that."

Pond rescue

Private contracts comprise the majority of Triple B Land Services' projects. To keep clients up to date on a job site's progress, Bragg texts and video calls his customers with daily updates. Recently, Bragg's quality of work and knack for communication earned his company the opportunity to rescue a pond for a private contractor.

"The property owner originally hired somebody to dig a pond, but wasn't happy with the finished product," explained Bragg. "There were several issues, but mainly he wanted to be able to mow along the pond with a zero-turn lawn mower and was not able to do that with the first contractor's finished product. We were able to address the issues and make the pond more accessible."

Triple B Land Services owner Ethan Bragg and an operator use a **Komatsu D39PX-24 dozer** and a **Komatsu PC210LC-11 excavator** to regrade 3.5 acres of property surrounding a pond. "Working next to a pond, the project was very wet," said Bragg. "It was essential that we had machines that could move lots of material without getting stuck. Our Komatsu dozer and excavator were the perfect fit for this job."

▶ VIDEO





Triple B Land Services owner Ethan Bragg uses a Komatsu D39PX-24 dozer to fix the grade leading up to a pond's edge. "The D39 has great power for its size," noted Bragg. "Its ground pressure ratio allows it to float over wet material without getting stuck. It also has the slant-nose design that allows you to see the blade for fine grading."

"The pond's banks ranged from 2 feet to 10 feet when the property owner brought us on-site," continued Bragg. "We cleared some land and regraded 3.5 acres to provide an even grade surrounding the pond, which allowed the client to easily mow the property. We also installed piping to slow down the washing and erosion process. Working next to a pond, the project was very wet. It was essential that we had machines that could move lots of material without getting stuck. Our Komatsu dozer and excavator were the perfect fit for this job."

Triple B Land Services utilizes two Komatsu D39PX-24 dozers and two Komatsu PC210LC-11 excavators.

"The D39 has great power for its size," noted Bragg. "Its ground pressure ratio allows it to float over wet material without getting stuck. It also has the slant-nose design that allows you to see the blade for fine grading."

"The PC210 is just as versatile as the D39," continued Bragg. "We use the 210 in tighter spaces where a bigger machine would get in

the way and on mass excavation jobs. From loading dump trucks to knocking down trees, the 210 can handle it. The machine also stands up on the wet areas."

At 6 feet, 7 inches tall, Bragg feels comfortable operating both Komatsu machines.

"I'm able to stretch out in either cab and don't feel cramped at the end of the day," noted Bragg. "Both machines are comfortable to operate, and the controls are at your fingertips. Working long days inside either machine isn't a problem."

TEC takes a chance

When Bragg founded Triple B Land Services, he was operating an older pair of dozers. After four months in business, Bragg met with Tractor & Equipment Company (TEC) sales representative Daniel Evans and added a D39PX dozer and a PC210LC excavator.

"Daniel is a younger guy like me and ambitious," stated Bragg. "We instantly connected when we met and have built a strong relationship since then. I was turned



Discover more at
TECTractorTimes.com

Continued...

'My downtime is extremely limited'

... continued

away by several other dealers because of my age and limited time in business. Daniel was willing to take a chance on me and help the company finance the equipment we needed.

"I know that I can call him with a question, and I'll get an answer quickly," added



An operator fixes grade at a pond using a Komatsu PC210LC-11 excavator. "We use the 210 in tighter spaces where a bigger machine would get in the way and on mass excavation jobs," said Triple B Land Services owner Ethan Bragg. "From loading dump trucks to knocking down trees, the 210 can handle it. The machine also stands up on the wet areas."

Bragg. "My downtime is extremely limited compared to where it used to be, due in large part to the relationship I have with Daniel, the TEC service and parts teams, and the Komatsu equipment itself."

Bragg relies on TEC to help service its machines. All four Komatsu machines are covered under Komatsu Care, a complimentary three-year or 2,000-hour program where TEC technicians service the machines at factory-scheduled intervals.

"TEC has been great to work with," stated Bragg. "I've bought undercarriages from them. I've bought parts from them. They're always willing to work with me and make it an easy process."

Looking ahead

Bragg sees a bright future for Triple B Land Services.

"I want to continue running two or three crews and work our way into larger projects," said Bragg. "Eventually, I'd like to add more crews and grow the company. We'll take everything one day at a time and continue to focus on doing things the right way." ■

(L-R) Triple B Land Services operator Nolan Bragg and Triple B Land Services owner Ethan Bragg work closely with TEC sales representative Daniel Evans to service their equipment. "I know that I can call him (Daniel) with a question, and I'll get an answer quickly," stated Ethan. "My downtime is extremely limited compared to where it used to be, due in large part to the relationship I have with Daniel, the TEC service and parts teams, and the Komatsu equipment itself."



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McElhenney Construction Company LLC relies on TEC and Komatsu machines in order to rapidly complete a boat launch

MMcElhenney Construction Company (MCC), based in Mobile, Ala., is working towards the rapid completion of a boat launch for Baldwin County, Ala. The project includes the construction of six ramps for boat launching, approximately 8 acres of parking, and boat mooring facilities around the perimeter of the inlet, with breakwaters on the end.

In total, this county-owned property is approximately 40 acres, with 20 of the acres being utilized for this construction. Parking for the project will be paved, and there will be an additional 2 acres of graveled parking, restroom facilities and a future boardwalk.

“This was needed badly and will help to get boaters into the intercoastal canal towards Mobile Bay or to the Gulf of Mexico,” said John Bush, vice president of operations. “A county engineer said this will be the largest boat launch facility on the entire Gulf Coast when finished.”

MCC is self-performing all work for the project, with the exception of water/sewer, pile driving, associated mooring work and asphalt work. Grant Nichols Construction Inc. is responsible for the utilities; dredge work will be done by M D Thomas Construction LLC; other marine work is being performed by Cassity Brothers Construction Inc.; Mobile Asphalt Company LLC has been selected for the asphalt work; and Jordan Pile Driving Inc. built a cofferdam.

Maintaining speed and accuracy with Komatsu

The project began on June 1, 2021, and in order to be ready for the spring season, needs to be completed by March 2022. For MCC, that means it is a 120-working-day project, so speed and accuracy are crucial. The company keeps a brisk pace and works at the site five days a week, at least 10 hours a day, with 10 to 12 employees.

To ensure rapid and precise completion, MCC purchased a new Komatsu PC360LC and a new Komatsu D51PXi intelligent Machine Control (iMC) dozer to add to its existing fleet of Komatsu machines. Three Komatsu D51PXi iMC dozers and a Komatsu PC210LCi iMC excavator are utilized extensively for continuous digging and grading work.

MCC has moved more than 100,000 cubic yards of earth in a somewhat short amount of time with rather wet material due to rain. Approximately 60,000 cubic yards of the material will be hauled away from the site. All earthmoving is being done through GPS and machine control systems.

“We won’t drive the first stake on this job. There will be no hubs or blue tops, just



(L-R) McElhenney Construction Company Vice President of Operations John Bush, Project Manager Greg Elmore, and Project Superintendent Matt Averett talk with TEC’s Chris Howard about the Komatsu machines on the job site in Orange Beach, Ala.



Komatsu PC210LCi and Komatsu PC360LC operators work in tandem for rapid excavation.



The addition of forestry tires helps a Komatsu WA270 wheel loader work in the sandy and marshy conditions.

machine control and electronics running from one base unit," said Bush.

Simultaneously with the earthmoving, approximately 2,000 feet of various-sized pipe is being installed by MCC for sewer, water and storm drain purposes.

Environmentally, MCC made sure all bases were covered — including the placement of a turbidity curtain, which extends 6 feet down into the water to prevent any turbid water from getting into the canal — before any initial excavation was started.

Despite rainstorm after rainstorm, the project is still on schedule, and three of the six ramps have been poured.

Great relationship with TEC

When asked about the staff of its Komatsu dealer, Tractor & Equipment Company (TEC), Bush said, "They're great to work with. There's a good reason you look around this job site and you pretty much see nothing but Komatsu. Everything else on the project is, for the most part, a rental or a subcontractor's machine."

Bush went on to tout the service work of TEC and Service Manager Robert Bush's attention to detail. Most of the company's machines are under the Komatsu Care program, so service work is performed after hours when machines are idle.

John Bush also gave high praise for others in the TEC organization.



An operator places pipe with a Komatsu PC238USLC mid-sized excavator.



Three Komatsu D51PXi intelligent Machine Control dozers play a big part in the earthmoving accuracy required on the project.

Continued...

'TEC's customer care is far and above the others'

... continued



A McElhenney Construction Company operator uses the company's newly purchased Komatsu PC360LC to efficiently keep the articulated trucks loaded and moving.



Turbidity curtains were placed before excavation began to ensure an environmentally friendly job site is maintained.

"I've been working with Chris Howard, our TEC rep, since 2010 and we've become friends, and he's been great to work with for all of our purchases," he said. "We run a lot of Topcon, and TEC's technology rep, Richie Sievering, helps us to get the most out of our machine control and all of our electronics. He's only a phone call away. If we have any questions, he can walk us through any issues we might have."

Josh McElhenney, owner and president of MCC, reinforced what Bush said and added, "TEC's customer care is far and above the others, and that means so much to us when we're trying to get something done. I feel like they're a part of our team, and they take ownership in making sure you have great tractors, and great tractors that work. They get you what you need, and that goes a long way."

Like clockwork

Overall, the project seems to be running like clockwork.

At any given time, MCC has around six different jobs going on at once. Of its current projects, this one is the largest. Josh McElhenney attributes success on his projects to "really, really good people."

"They love to work," he said. "John (Bush), Matt (Averett) and Greg (Elmore) have done a great job to keep this project on schedule. This is a really cool project, and I'm proud that we got the opportunity to do it. We'll definitely do it right. We're going to use it ourselves when this is complete." ■



McElhenney Construction Company uses a Komatsu PC210LC excavator to load up its dump trucks, which will move material off-site.



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Capital infrastructure program management and delivery require a roadmap to digitalization



Balaji Sreenivasan,
Founder and Chief
Executive Officer,
Aurigo Software
Technologies

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.

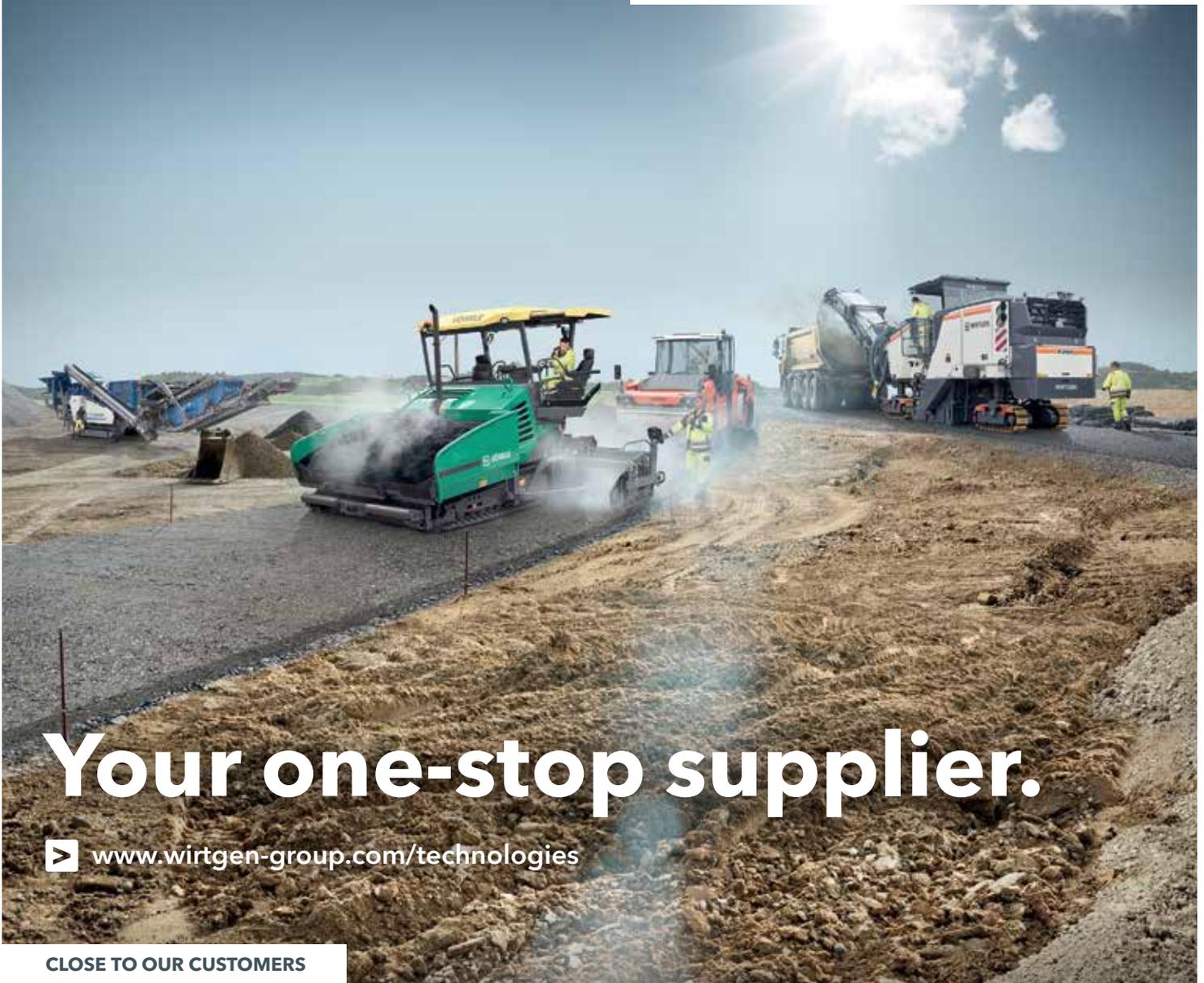
With digital tools at the ready, and efficient processes in place, capital project owners and managers can build a better future to support the American dream for generations to come. ■

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/>



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." ■



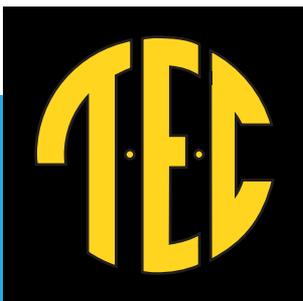
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The top reasons robots are suited for construction work, and what's holding them back

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."

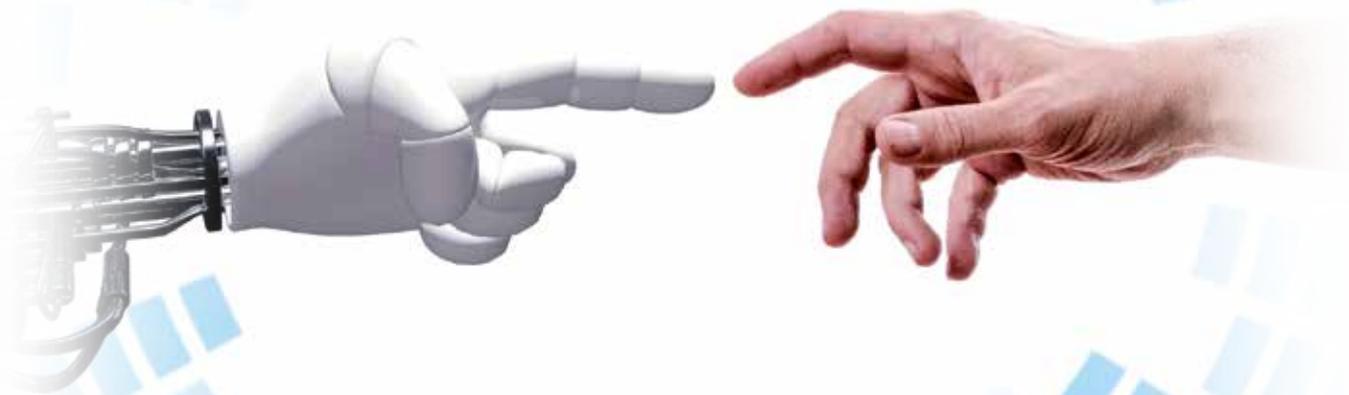
That may change as technology advances, according to Will Knight in *Wired*. The article talks about a robot drywaller built by Canvas that scans unfinished walls using lidar (light detection and ranging) or what's sometimes referred to as "laser scanning" and applies joint compound.

"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/>





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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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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. ■

To discover more helpful information, visit www.komatsu.com.

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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/>

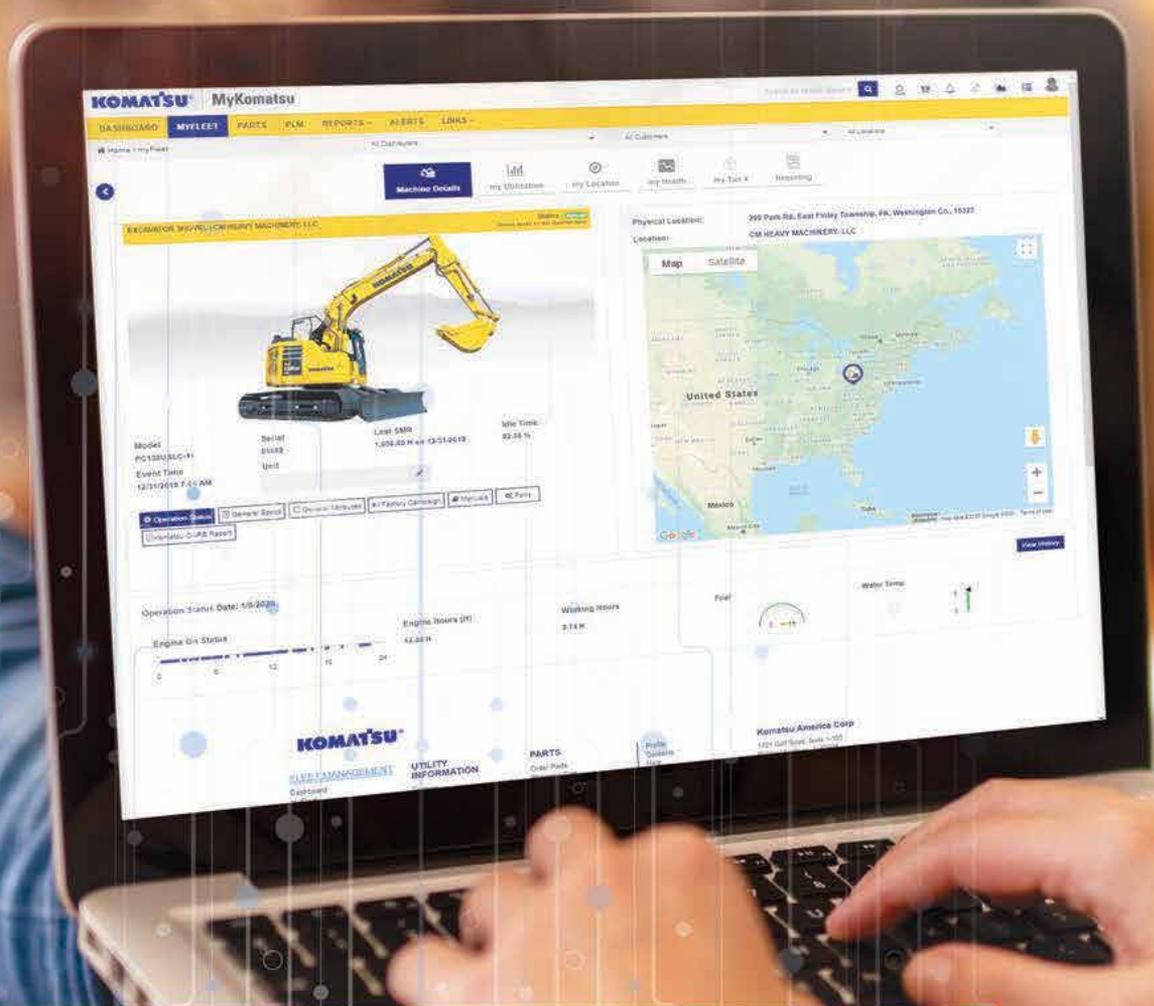


Greg Clinton,
Attachment Product
Support Manager,
Komatsu

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.



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Are you putting off repairs?

A well-maintained machine runs cleaner and more efficiently, with reduced downtime. To help keep your machines up and running, did you know that Komatsu Financial offers financing for parts and service repairs on eligible machines through your distributor when the work is performed by Komatsu-approved technicians? With finance terms up to 30 months, you can pay for the parts and labor later.

Financing is available up to \$300,000 for parts and labor. Rates are as low as 0.99% depending on the amount financed, and four

payment skips every 12 months are available. Terms and conditions apply. Subject to credit approval. Current rates are good through March 2022. Contact Tractor & Equipment Company for complete details.

Insider Tip: Contact TEC's finance team for additional details. ■



To learn more about parts financing, visit <https://www.komatsu.com/en/services-and-support/financing/>



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Insider Tip: "By connecting your machines and office with Smart Construction Remote, you can ensure that your operators always have the right files and support they need to get your jobs done faster with less rework," said Bryce Satterly, Smart Construction solutions manager. ■

Learn more about Smart Construction Remote by contacting TEC or visit: <https://www.komatsu.com/en/site-optimization/>



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. ■



Scan the QR code to learn more about how to lower your costs and increase productivity with a D71-24 dozer.



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"THEN SANTA STARTED SHIPPING WITH AMAZON. THAT WAS THE END OF MY SLEIGH GIG!"

Did you know?

- There are 10 million bricks in the Empire State Building.
- Bong Joon-ho's "Parasite" was the first non-English-language film to win Best Picture at the Oscars.
- As of 2020, women account for 10.9% of the construction workforce.
- Taylor Swift appeared on an episode of "CSI: Crime Scene Investigation" in 2009.
- The heart of the blue whale, the largest animal on earth, is five feet long and weighs 400 pounds. The whale in total weighs 40,000 pounds.
- Flamin' Hot Cheetos were developed by a janitor at Frito-Lay, Richard Montanez, who got the idea after putting chili powder on some reject Cheetos and then pitched it to the CEO. He's now a successful executive and motivational speaker.
- Willi Maier holds the record for hammering 24 nails in one minute.
- American gymnast Simone Biles has seven Olympic medals — four gold, one silver and two bronze.
- Mary Shelley wrote "Frankenstein" when she was 18 during a ghost story competition, while staying in Switzerland with writers Percy Shelley (her lover) and Lord Byron.

Brain Teasers

Unscramble the letters to reveal some common construction-related words. Answers can be found in the online edition of the magazine at TECTractorTimes.com

1. LIFL _____
2. DASN _____
3. ATRWE _____
4. RMA _____
5. EADLB _____



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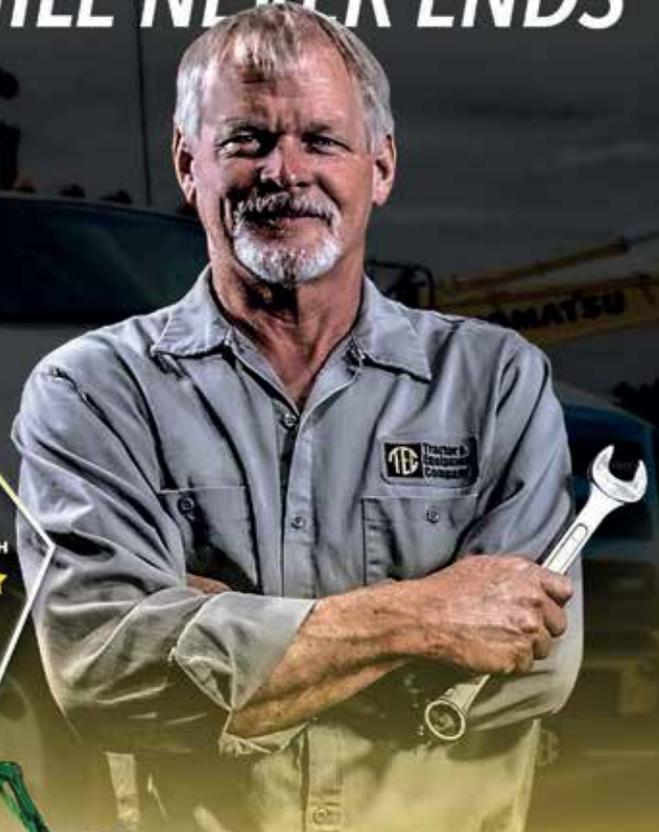


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