

DOWN to EARTH

GENERAL
EQUIPMENT & SUPPLIES, INC.

Guthmiller & Son Dirtworks Inc.

Family business adds iMC and GPS-equipped machines to increase efficiency



Trent Guthmiller,
President

A Message from General Equipment



Jon Shilling

**Ready for
the latest
construction
innovations?**



Dear Valued Customer:

CONEXPO-CON/AGG — the largest equipment show in North America — is about to return. We're excited to learn about the latest innovations in machines and technology for the construction industry. If you've attended before, you understand the value of the show. If you haven't, we encourage you to check it out. This issue includes a preview of CONEXPO-CON/AGG that has information about where our manufacturing partners' exhibit spaces will be located.

As one of the leading manufacturers at CONEXPO-CON/AGG, Komatsu will showcase some of its most innovative machines and Smart Construction solutions. Inside, you will find an article about how one Komatsu user is saving valuable time and money by uploading files remotely rather than driving to the job site, thanks to Smart Construction Remote.

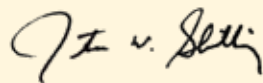
Drones can also be a solid investment for your business. We can help you learn about using Komatsu's Smart Construction Drone to survey and measure your sites.

Even though these new technologies increase efficiency and production, it still takes well-maintained equipment to get the job done. A PM (preventive maintenance) clinic provides a detailed inspection of your machines to help keep them running like new. Call our service department or your sales representative to set one up.

There are also articles that feature new products that can help your business increase production, including Komatsu's new HD1500-8E0 mechanical haul truck.

As always, if there is anything we can do for you, please feel free to contact one of our branch locations.

Sincerely,



Jon Shilling,
President & CEO

DOWN to EARTH

In this issue

Guthmiller & Son Dirtworks Inc. pg. 4

Meet Trent Guthmiller, whose firm completes projects in North Dakota.

Guest Opinion pg. 7

Learn how to safeguard your equipment.

Industry Event pg. 8

Get a glimpse of CONEXPO-CON/AGG 2023.

Fuel Facts pg. 10

Lower fuel costs even when prices are high.

Product Insight pg. 12

Find out which tight tail swing excavator is right for you.

Product Improvement pg. 14

Check out Komatsu's new PC490LCi-11 iMC 2.0 excavator.

Tech Talk pg. 16

Examine five ways drones can be beneficial to your job sites.

Customer Success Story pg. 18

Discover how Tomahawk Construction controls costs.

Proactive Approach pg. 20

Understand the importance of preventive maintenance clinics.

New Solution pg. 23

Take a look at Komatsu's new Smart Construction Retrofit.

Smart Construction pg. 24

Incorporate the right Smart Construction solutions into your operations.

New Truck pg. 27

Read about Komatsu's new HD1500-8E0 mechanical haul truck.

Insider Tips pg. 29

Stay up to date on Komatsu's new products and programs.

Management Tips pg. 30

Follow these tips to retain employees.



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KOMATSU

Family-owned Guthmiller & Son Dirtworks Inc. adds iMC and GPS-equipped machines to increase efficiency



Trent Guthmiller,
President

Trent Guthmiller started his career at a young age working with his grandpa Ludwig and his dad, Allen, in the well business. When he was 5, Trent started driving a 1961 Diamond T semitruck with a belly dump, which he still currently owns. From there, he was excavating with a Ford backhoe — digging water and sewer at 6 years old. One year later, Trent learned how to run their Hough 60 payload loader to bury rock piles and push manure. Moving dirt and changing the landscape has always fascinated Trent, so after growing tired of doing the labor work without being able to run the equipment he wanted, Trent quit his job and went out on his own.

In 2001, Trent and Allen started Guthmiller & Son Dirtworks Inc. in Bismarck, N.D. Throughout their years in business, they've operated primarily in the Bismarck-Mandan area, but they will occasionally take on projects out of town.

"We're kind of there for everybody; if they need something done, we're there to do it," said Trent.

Adding iMC machines

What started with a shovel and a Mazda pickup has now grown into a business that operates with five GPS-controlled scrapers, a blade, and a Komatsu intelligent Machine Control (iMC) dozer along with many other trucks and pieces of equipment. The decision to bring in iMC machines was largely due to efficiency, according to Trent.



On a job site, an operator moves material with a Komatsu D61PXi intelligent Machine Control (iMC) dozer.

"Now with all the regulations that the state and federal jobs are requiring, and even the city and private jobs, we needed to get in with the smarter technology with GPS and iMC machines to make it as user-friendly as possible for my guys," said Trent. "But, efficiency was a big portion of it — not having to rely on waiting for a surveyor or having another guy on-site checking, and cutting our labor costs too, to be honest."

Trent continued, "When GPS was initially brought into our company everyone was terrified. We didn't know anything about it. It has its challenges and has been a learning process from day one. We just completed a project in Garrison where we did old-school grading and refreshed ourselves. It was good to bring it on board to the guys that technology can go down, and we have to have another way to keep moving through the day."

Despite its learning curves, the move to iMC machines has enabled Guthmiller & Son Dirtworks to complete projects more efficiently while saving on fuel costs, Trent noted.

"We've reduced our time drastically with getting projects completed," said Trent. "As long as the operators are watching their screen and paying attention, we've gotten out of projects about 15% faster."

Family involvement

Guthmiller & Son Dirtworks has already expanded to a new generation, as Trent's 16-year-old daughter, Jordan, recently stepped up to help finish a job.

"About a month ago, she (Jordan) started running the iMC dozer," recalled Trent. "We were short some guys and needed to get a project done, so I jumped in the iMC dozer with her and showed her the ins and outs of the screen and what to watch for and how to set everything up on the job site, and she completed about 55 acres of top soiling by herself."

An impressive accomplishment from the outside looking in, but it's nothing out of the ordinary for his girls, noted Trent, adding that his wife, Mindy (who has since passed), and two daughters have always been involved with the family-owned company.

"She (Jordan) used to be with her mom out grading streets while I was running blade back in



Guthmiller & Son Dirtworks Inc. increases efficiency with its new Komatsu D61PXi iMC dozer. "We've reduced our time drastically with getting projects completed," said President Trent Guthmiller. "As long as the operators are watching their screen and paying attention, we've gotten out of projects about 15% faster."

the old days when we did everything by hand," recalled Trent. "She and her mom would measure the stakes and cuts and fills with a ruler and a level and then paint marks on the ground, and I'd come by to either fill them or cut them. She knew everything by the age of 3 — my other daughter, Taylor (14), is the same way — from cutting dirt, to laying pavement, to seeding the project and the houses getting put in. They're both involved in the company."

Superior service

Like any business owner, Trent knows that finding ways to stay up and running is pivotal to success — something that General Equipment & Supplies Inc. has always understood.

"I've been doing business with General Equipment for over 20 years, even before I was out in my own company," noted Trent. "I kind of did things on the side and bought different parts from them. They've always made sure that we were number one on their list. If we broke down, they understood that we had to be up and running to keep going to pay our bills."

Even though Guthmiller & Son Dirtworks is a smaller business, General Equipment has always provided excellent service.

"Very seldom are we broken down or not moving," said Trent. "We have a few machines, and they've never treated us any differently than if we were a company of 100 machines. So, they've been very good. Aaron Brothen,



(L-R) The Guthmiller family includes Allen, Jordan, Trent, Diana and Taylor.

our salesman, is great. Don Meidinger (parts counterperson) and Al Chmielewski (parts counterperson) — the minute you call, they're immediately ordering it and getting it there, so we've never had any complaints with the parts side of things."

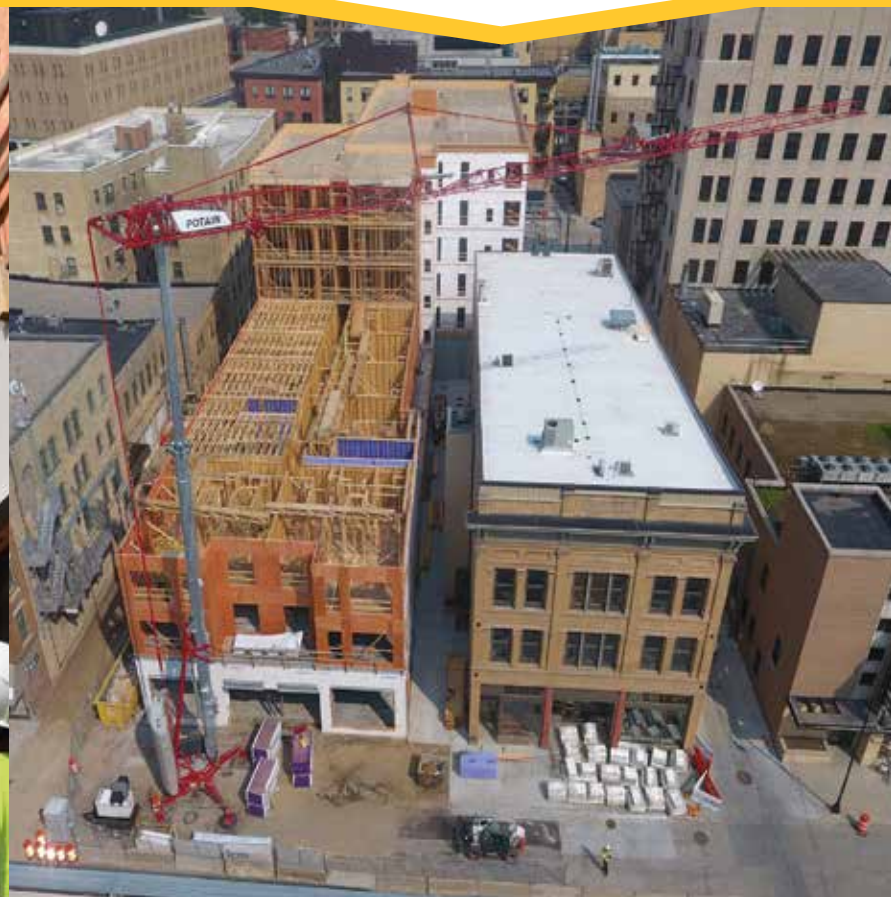
Trent added that he's been doing business with Alex Klein, a product support sales representative (PSSR) at General Equipment, for over 20 years as well as Matt Hollingsworth, who has recently taken a role in the service department, and both have treated Guthmiller & Son Dirtworks exceptionally well. ■

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Safeguard equipment, keep insurance premiums in check with a few effective, yet simple, risk management steps

Tools and equipment used on construction sites are often subject to theft and vandalism — creating project delays and impacting costs. Over time, multiple claims may also increase insurance premiums. While not every loss can be prevented, there are improved methods for safeguarding construction equipment that go beyond fences and standard locks.

When creating a loss-prevention strategy, the following can help your construction clients protect their business property.

Anti-theft devices

Heavy equipment, vehicles and trailers, as well as areas where tools and building materials are kept, can be better protected during non-working hours when anti-theft/anti-vandalism devices are used. Options include high-security, pick-resistant locks that can be placed on steering wheels, axles and fuel tank caps. Other considerations can include the use of case-hardened security chains that can help secure smaller equipment, preventing items such as trailers from being easily moved off the premises.

Deactivation devices

These are simple, yet effective, tools for stopping thieves in their tracks. While there are many different types of deactivation devices on the market, the objective for each is the same: an immediate shutdown of equipment that is being tampered with, rendering it immobile.

GPS tracking devices

In the event of a theft, your clients have an improved chance of recovering stolen items if their equipment has a hidden GPS tracking device. Once the device is activated, law enforcement personnel can use the technology to reveal the equipment's location.

Night cameras

Nighttime security surveillance has vastly improved in recent years. Some of the best night camera security systems offer forward-looking infrared (FLIR) mapping that detects people, objects and vehicles on a construction site — even in inclement weather or low-visibility conditions. FLIR systems allow operations to be livestreamed from any location on a smartphone or other electronic devices.

Drones

Drones can assist in viewing or inspecting a job site when a suspicious activity has been detected or when an alarm has been triggered. Advantages over a security guard include the ability to patrol wide areas in less time and track a thief across long distances.

Deploying any of these methods can't guarantee that your construction client's equipment won't be damaged or stolen by thieves. However, they are good steps in the right direction. In many situations, occurrences can be reduced through appropriate risk management procedures. If an incident does occur, having the right insurance can help mitigate the financial impact of a loss. ■



Paul Hohlbein

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Safeguarding your assets is essential to avoid vandalism and theft, which can delay projects and prove costly in other ways such as higher insurance premiums. Taking precautions can help protect your property.



CONEXPO-CON/AGG will return to Las Vegas with additional exhibit space, focus on latest industry innovations

North America's largest construction trade show is right around the corner. CONEXPO-CON/AGG will return to the Las Vegas Convention Center on March 14-18, 2023. Held every three years, it features the latest in innovation and equipment from all sectors of the industry.

In addition to the approximately 1,800 exhibitors spread across 2.7 million square feet of exhibit

space, the show will also have more than 150 educational sessions that highlight the latest topics and industry trends. The sessions are grouped into tracks such as aggregates, asphalt, business best practices, earthmoving and site development, equipment management and maintenance, and more.

During the last show in 2020, construction of the new West Hall and adjacent Diamond Lot on the site of the old Gold Lot was underway, as was the Tesla-powered underground people mover called the LVCC Loop. Both projects are now completed, and CONEXPO-CON/AGG and the co-located International Fluid Power Exposition (IFPE) will make full use of them.

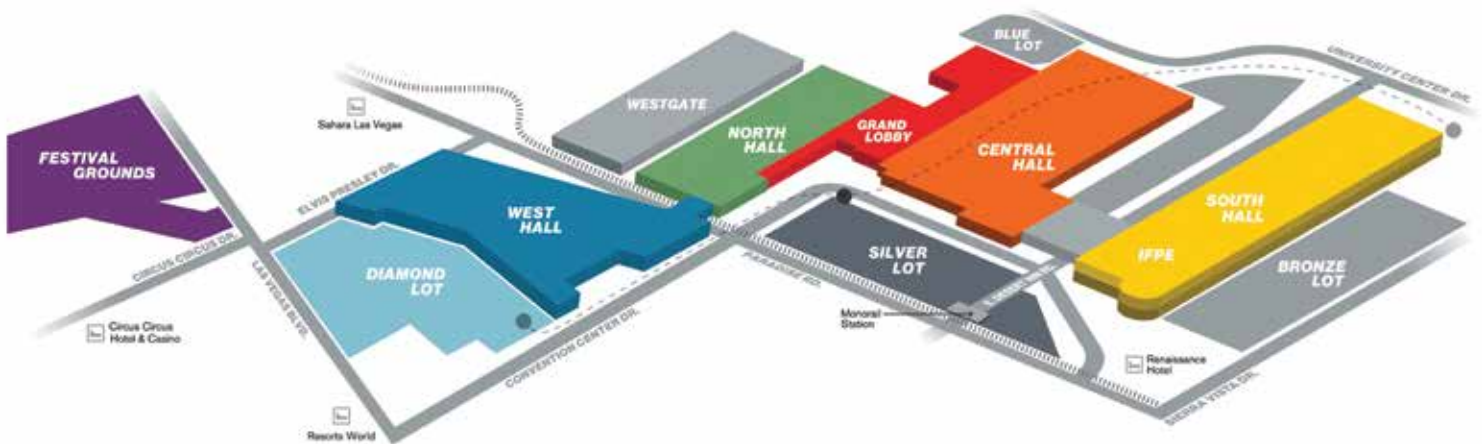
"AEM (Association of Equipment Manufacturers, a co-owner and operator of CONEXPO-CON/AGG) and our show committees of industry leaders are working to take advantage of everything that has changed in Las Vegas to deliver a top-notch event delivering the latest innovations and best practices to help construction pros take their businesses and careers to the next level," said Dana Wuesthoff, Show Director of CONEXPO-CON/AGG 2023. "Between the West Hall and Diamond Lot bringing a lot of displays

Manufacturer	Booth Number
Astec Industries	C30235
Dynapac	C30931
ESCO	W42201
Gorman-Rupp	C30016
Hensley Industries	W42028
Kawasaki	S80707
Komatsu	W42044
Major Wire Industries Limited	C32267
Masaba	S5918
NPK	C30034
Superior Industries	S5006
Surestrike International	C22021
Terex	S5435



CONEXPO-CON/AGG gives attendees the opportunity to see and learn about the latest machinery and innovations in the construction industry. The experience includes the ability to climb inside of equipment and talk with industry experts.

OVERVIEW MAP



CENTRAL HALL

Aggregates
Asphalt

Concrete
Safety

DIAMOND LOT

Business Operations
Concrete
Engines & Drivetrains
Hauling
Infrastructure Maint.
Jobsite Support

Land Clearing
Portable Power
Safety
Technology Solutions
Trucking
Underground

FESTIVAL GROUNDS

Earthmoving

Lifting

NORTH HALL

Business Operations
Earthmoving
Hauling
Jobsite Support

Land Clearing
Lifting
Safety
Technology Solutions

SILVER LOT

Aggregates

Asphalt

SOUTH HALL

1ST LEVEL

Equipment Components
Infrastructure Maint.
Portable Power
Trucking
Underground

2ND LEVEL

IFPE
Engines & Drivetrains

WEST HALL

Earthmoving



Komatsu will have one of the largest booths (W42044) in the West Hall with close to 20 machines and its Smart Construction solutions on display.

closer to the rest of the show as well as serving as a connector to the Festival Lot and the LVCC Loop making it effortless to get across the entire Las Vegas Convention Center, it's never been easier for attendees to see everything they want to learn about when they get here."

Easier to get around

With an additional 1.4 million square feet of indoor space — including 600,000 square feet of "technologically advanced" exhibit space — the West Hall will be a hub for earthmoving and material handling displays. Komatsu will have one of the largest booths (W42044) in the West Hall with close to 20 machines and its Smart Construction solutions on display.

The Diamond Lot will have a variety of exhibits such as business operations, hauling, portable power and underground construction.

The LVCC Loop will transport attendees and make stops in the South Hall, the Central Hall and the Diamond Lot. Attendees can use the on-site shuttle service to get from the West Hall to the Festival Lot, which has the show's largest exhibits.

Next Level Awards

Another new feature at CONEXPO-CON/AGG and IFPE is the inaugural Next Level Awards

Program, which will celebrate exhibiting companies that are pushing the boundaries to develop next-level products, technologies and services that advance the construction industry. During the show, 10 finalists will be highlighted, and attendees can vote on-site to determine the Contractors' Top Choice.

The awards program is open to all 2023 exhibitors in good standing that have created products or services for the construction industry that have one or more of the following characteristics:

- Addresses a common industry need in a unique and innovative way
- Benefits the industry across multiple applications for industrywide adoption
- Positively impacts the safety, sustainability and workforce of the industry

"We are excited to recognize the innovative construction products that are taking the industry to the next level," said Wuesthoff. "Exhibitors, large and small, have an opportunity to be recognized for driving ideas and developing products or services to advance the industry. This is an exciting addition to CONEXPO-CON/AGG and IFPE, and we strongly encourage exhibitors to enter." ■



Register for the show at
CONEXPO-CON/AGG'S
website: <https://www.conexpoconagg.com>.

Here are some tips on how to lower fuel costs even when prices are high

Fuel is a major expense for most construction companies — and when its cost goes up, so does the threat to companies' bottom lines.

While we cannot control the price at the pump, the good news is there are still ways for construction companies to reduce their fuel usage and lower costs.

Negotiate

In some cases, you can help defray costs through contracts and agreements. Negotiating a surcharge clause that gives you the ability to raise prices if fuel costs reach a certain level is a possibility. You may also have a simple deal with a customer that gives you the ability to do the same. If you signed a contract before prices soared and don't have fuel surcharges in place, you can try to add them, but it's more likely you will have to seek ways to reduce your owning and operating costs to offset the higher price.

Reduce your idle time

If you are idling for extended, unproductive periods of time, you are wasting fuel.

Idling is necessary in certain situations such as warming up and cooling down a machine. It could also be justified when you

are in high-production activities that involve near-constant movement, such as loading trucks with an excavator and charging crushers with a loader, where restarting would negatively affect productivity.

Telematics let fleet managers easily track idle time by machine for their entire equipment lineup. If they see excessive idling, they can address it with operators and other on-site personnel.

Using Auto Idle Shutdown, a feature available on most Tier 4 Final machines, is an easy way to decrease idle time during unproductive periods. Your machines' operations and maintenance manuals can show you how to set it — the minimum is five minutes before shutdown begins in most cases — and your local dealer can help too.

Heed ECO Guidance suggestions

ECO Guidance, which provides information to operators on energy-saving operations that reduce fuel consumption, is a feature on most machines introduced during the past 10 years. It displays messages on the monitor in certain situations, such as an idling stop guidance if



Watch the video

Excessive idle time wastes fuel and reducing it can be one of your biggest cost savers. Using Auto Idle Shutdown, a feature available on most Komatsu Tier 4 Final machines, is an easy way to decrease idle time during unproductive periods. Another available feature is ECO Guidance, which provides information to operators on energy-saving operations that reduce fuel consumption.





Fuel is a major expense for construction companies, but no matter the price, there are easy ways to reduce usage, such as using technology, choosing properly sized machines, and running them in the right mode.

no operation is performed for more than five minutes, and the engine is idling.

Choose the most effective mode

ECO Guidance might also suggest operating in Economy (E) mode instead of Power (P) mode.

E mode provides better fuel efficiency, so it's often the best choice. Excavators and dozers are used for both digging and moving naturally compacted soils, and in most instances, E mode will get the job done without unnecessary fuel burn. However, if the material is hard such as heavy clay and requires greater power to move, then P mode should be used.

Properly size and match equipment for the task

Bigger is not always better and using a large machine for a job that a smaller one can efficiently do increases fuel usage and overall operating costs. Fleet managers need to consider several factors when utilizing equipment, including choosing the right size for the job.

It is also important to consider sizing attachments correctly. Excavator buckets are

a prime example. Many contractors believe bigger is always better with buckets. However, at the end of the day, the pile of dirt excavated or loaded is often the same with a properly sized smaller bucket. Larger buckets extend cycle times, work a machine harder, spend more time over hydraulic relief, and end up burning more fuel.

Use technology

GPS-based grading helps increase productivity and lower per-yard costs to move material. In the last 20 years, GPS technology has improved significantly with integrated machine control that lowered costs associated with replacing cables, masts and additional satellites that increased accuracy.

Many of today's machines with integrated GPS grade control also feature additional technologies, such as Komatsu's Proactive Dozing Control logic, that help operators get to grade even faster and at lower costs, including reduced fuel usage. An added benefit is that technology is helping new operators become proficient at moving dirt faster than ever before. ■

Editor's Note: This article is excerpted from a longer blog. To read it in its entirety and find out more about fuel savings, visit <https://www.komatsu.com/en/blog/2022/tips-for-lowering-your-fuel-costs-even-when-prices-are-high/>.



Which tight tail swing excavator is right for the job?



Kurt Moncini,
Senior Product
Manager,
Komatsu

Ensuring high production when digging in tight spaces and confined job sites can be challenging. Machines with traditional counterweights may not be ideal because of the likelihood they could swing into an obstruction, making tight tail swing excavators a much better fit. However, with so many tight tail swing sizes and models available, choosing the right one for the job takes some careful consideration.

"Tight tails allow operators to be more efficient because they typically have better situational awareness and can concentrate on the task at hand while reducing the chances of swinging into an obstruction or into a lane of traffic," stated Kurt Moncini, Senior Product Manager, Komatsu. "Typically, the upper structure is revolving within the confines of the undercarriage, which is why they are great for a variety of tasks in urban areas, or where space is limited."

To increase versatility, consider adding attachments such as blades or breakers to your tight tail swing excavators. Most of the machines are already plumbed and ready to run the right-sized attachments.

What's the digging depth?

According to Moncini, digging depth is an important consideration when choosing the right-sized tight tail swing excavator.

"Pipe typically comes in multiples of 8-foot sections, so taking that into consideration, I always like to look at the 8-foot level bottom digging depth because that's the maximum depth I can dig and excavate an 8-foot flat bottom section of trench," said Moncini. "As an example, if the required pipe run trench depth is 10 feet, my most efficient machine size will be one that can excavate an 8-foot level bottom to that depth. I need

to size the machine accordingly and try to go with the smallest tight tail that will do the job most efficiently."

How much do I have to lift?

Lift capacity is another major factor in choosing the right excavator. While you want to be able to move the machine as little as possible, you need to consider what you may need to move on-site in addition to digging.

"If you are excavating utility trenches in an urban environment, there is a good chance you will have to handle trench boxes and set steel plates to cover up the trench at night, or you may have to pick up and install heavy concrete pipe or structures," said Moncini. "It's vital to have a machine with sufficient lift capacity to handle the job. Ideally, I really want to be able to handle over the side as much as I can lift in front."

Moncini added, "The heavier the required loads become, the bigger the machine I'm going to need. Having a machine that can also lift the materials off the trailer when they arrive is important too. I need to be able to lift, handle and place materials until it's time to use them, then have the ability to rehandle and lay them in the trench."

Do I want versatility?

"Most smaller machines come standard with a blade, which extends versatility," said Moncini. "The ability to push material and backfill is an added advantage and may be able to eliminate an extra machine on the job."

Moncini also added that a blade can help you get better over-the-front lift capacity.

Additional tight tail swing versatility can be achieved by equipping the excavators with attachments such as breakers, but you must properly size them to the machine.

"If the job calls for breaking up old pavement or other concrete structures, you should first size the breaker for the task, then ensure the excavator is big enough to handle it and has the correct hydraulic flow to operate it," said Moncini. "There are a wide range of attachments — from compactors to mowers and more — that you can use with a tight





Komatsu manufactures eight tight tail swing models, ranging in size from the approximately 6,800-pound, 24.4-horsepower PC30MR-5 to the roughly 54,000-pound, 165-horsepower PC238USLC-11. "Tight tails allow operators to be more efficient because they typically have better situational awareness and can concentrate on the task at hand while reducing the chances of swinging into an obstruction or into a lane of traffic," stated Kurt Moncini, Senior Product Manager, Komatsu. "They are great for a variety of tasks in urban areas, as well as others, where space is limited."

tail swing. The good news is that most are already plumbed and ready for attachments."

Which boom design is right for me?

Komatsu manufactures eight tight tail swing models, ranging in size from the approximately 6,800-pound, 24.4-horsepower PC30MR-5 to the roughly 54,000-pound, 165-horsepower PC238USLC-11. There are five MR (minimum-radius) models and three US (ultra-short) models.

"The MR excavators have a swing boom, and the US models have a standard boom," Moncini noted. "Our MR design allows the operator to pivot the boom left or right to get right next to a structure and dig parallel to the tracks, so they are much more versatile. The advantage of a standard boom is that it's a little lower price point. Additionally, the standard boom overextends toward the back of the machine to tuck the bucket in tight."

What about tracks?

Track selection may play an important role when working in urban environments.

You want to avoid breaking up pavement, damaging sidewalks and ruining grassy areas.

"Having to fix an existing surface could be a major hit to your profit," said Moncini. "Our smaller tight tail swing excavators come standard with rubber-belted tracks. Not only do they minimize ground disturbance, but they are quieter and faster than steel tracks. Road liners, or conventional tracks with rubber pads, are very popular in our mid-sized to larger models when working on improved surfaces."

Who can I talk to?

For additional information, Moncini suggests consulting with your Komatsu distributor.

"Our distributors have the knowledge and expertise to help you determine the right-sized machine to most effectively get the job done," said Moncini. "Tight tail swings can be excellent tools for limited-space job sites and can also offer high production in open areas too. If you are not using them, consider checking them out to increase your versatility." ■

Editor's Note: To learn more about Komatsu's tight tail swing excavators, visit <https://www.komatsu.com/en/products/excavators>.



Proprietary iMC 2.0 promotes significant productivity gains and is now available on Komatsu PC490LCi-11 excavator



Learn more

Quick Specs

Model

PC490LCi-11

Net Horsepower

359 hp

Operating Weight

105,670-107,850 lbs.

Bucket Capacity

1.47-4.15 cu. yd.

Designed to lessen the skills gap between new and experienced operators and help improve the bottom line for contractors, Komatsu's largest intelligent Machine Control (iMC) 2.0 excavator, the PC490LCi-11, offers sophisticated productivity-enhancing automation. An excellent match for excavation, trenching, slope work or fine grading, the PC490LCi-11 helps minimize over-excavation to empower operators to dig straight to grade quickly and accurately.

Built on Komatsu's iMC platform and developed with input from leading construction companies, iMC 2.0 offers additional new features.

Upgraded iMC monitor

A new 10.4-inch iMC monitor features increased memory capacity, processing speed and pinch-to-zoom functionality in a smaller lightweight package for improved performance and ease of use.

Bucket angle hold control

The new bucket angle hold control helps operators reach final grade with speed and precision. It automatically holds the bucket angle to the design surface during arm operation, enabling operators to perform finish grading using only arm input.

Both features build upon the semi-automatic functions that were part of the first generation of iMC excavators, including the ability to switch from manual to semi-automatic mode. The existing technology and new features can help increase production and efficiency while reducing costs. ■

The PC490LCi-11 is Komatsu's largest intelligent Machine Control (iMC) 2.0 excavator. It's an excellent match for excavation, trenching, slope work or fine grading. New features include an upgraded iMC monitor and bucket angle hold control.





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Five ways drones can help reduce costs and increase efficiency on construction sites

As technology continues to change the construction industry, a potentially dynamic investment companies can make isn't iron on the ground, but a drone in the sky.

Drones are more accessible than ever with relatively affordable prices and simple operating controls, which make it possible for any organization to start drone operation.

If you're ready to expand your fleet, here are five ways drones can help reduce costs and increase efficiency on your job sites.

1. Streamline communications

Being able to streamline information and connect your entire staff can help increase your workplace and job site efficiency.

With a timeline function, drones can take photographs from the same coordinates during the duration of a project to provide a timelapse of the progress. This can keep everyone up to date on the project's status.

"The drone technology allows us to have somebody go out and drone sites two to three times a week," said Greg Sutton, Vice President of Operations at Aspen Earthworks Inc. in Reno, Nev. "Even if I can't get out here and see what production has

happened on a site, I still feel like I visited the job site through the drone technology."

2. Spend less time surveying

Depending on the site, conventional surveying can take days — with drones, it can take minutes.

"I think the greatest change after adopting drones or being exposed to drone usage is using the high accuracy survey grade data that they provide," said Jason Anetsberger, Director of Customer Solutions at Komatsu. "Instead of having to walk a site or drive a site to map it terrestrially, they can now fly the site in a much larger area, in much higher resolution, in much less time, and get a highly accurate survey of that terrain. It has opened a whole new world for contractors to extract value from utilizing a drone."

A company can quickly and accurately collect objective data of its job site with a drone, and that information can be used to help increase productivity and efficiency in the field.

3. Get accurate material estimates

Having the incorrect number of materials for a project can waste time and money. On construction sites, drones can quickly provide a precise representation of the area, so you can get an accurate estimate of everything you will need for the project.

During a preconstruction flight, you can compare the real site to the engineer's model, which allows you to fix any miscalculations. By correcting those errors, companies can quickly see a return on investment.

"We had a customer recently who realized they had to move 40,000 cubic yards more than what the engineer quantities were saying they needed to do at the beginning of the job," said Jim Petry, Construction Project Modeler for Komatsu. "For them, that was a big revelation. That was the first time that they used a drone. They quickly found a lot of value in it. They can see where their cut and fills are on the site, where that is taking place, and if it's a large site, they can make better decisions on equipment."

With more accurate measurements in the early stages of projects, companies can adjust their

Drones are more accessible than ever with relatively affordable prices and simple operating controls, which make it possible for any organization to start drone operation.





With a drone, a company can quickly and accurately collect objective data of its job site, and that information can be used to help increase productivity and efficiency in the field.

fleets accordingly to help increase production and have more precise data collection throughout the process.

“Komatsu’s Smart Construction Drone has enabled Aspen Earthworks to reach new levels,” said Aspen Earthworks President Ryan Dustin. “With day-by-day information, it’s enabled us to really dial in our estimating and our production rates that I believe have helped put us near the top of our market, and it was incredibly easy to get started. With that moment-by-moment information and real-time data, we can work with our project manager and superintendents to help us reorganize and redo the way we approach our dirt and utilities projects to increase efficacy.”

4. Connect clients to every site

You can also use drone technology to quickly and accurately connect beneficiaries to the job site, which can help save time, avoid future headaches, and secure repeat clients.

“With drones, you can give clients confidence that they’re getting the production that they’re paying for,” said Anetsberger. “That could help contractors secure future business. There’s more trust in that relationship if you’re feeding

them near-real-time data or opening a digital twin, so they can follow alongside.”

Plus, drones can reduce the amount of time spent providing documentation for invoices.

“Instead of spending a day doing that conventionally, you’re doing the flight in just a few minutes and can accurately compare that against the last flight to be able to put their invoices forward and get paid as progress moves along,” said Petry.

5. Create dynamic marketing content

Aside from using drones for surveying, they can also be used to collect photographs and videos on job sites, or even at the office, that can be used for marketing, recruitment and public relations campaigns.

The maneuverability of drones can create dynamic photographs and videos that a person on the ground simply cannot easily replicate. Also, you don’t have to cut into your marketing budget for a camera.

While any drone can adequately survey, photograph and record a job site, Anetsberger and Petry recommend a robust model if you want high accuracy with good stability to get the most out of your investment. ■

Tomahawk Construction utilizes Komatsu's Smart Construction Remote to control costs and maximize efficiency



Randall Hendra,
Project Surveyor

A mix of private, commercial and Department of Transportation (DOT) work keeps Tomahawk Construction and its approximately 90 employees busy year-round in Fort Myers, Fla. Established as a premier site development firm nearly 20 years ago, Randall Hendra came on board in 2014 to oversee surveying operations.

"I had my own surveying company and saw early on how GPS technology cut into my traditional role of surveying and staking sites," said Hendra. "Instead of fighting change, I decided to learn what GPS could accomplish. Since joining Tomahawk, we've transitioned from staking jobs to utilizing GPS technology for all of our projects."

With multiple active job sites spread across the greater Fort Myers area, Hendra is constantly monitoring job site progression. He relies on Komatsu's Smart Construction Remote — a software system that allows you to transfer files, support operators and locate machines from your computer — to work efficiently and keep projects on schedule.

"We do a lot of subdivision work, which means plans are continuously updating

and changing throughout the build," noted Hendra. "The demand for housing in the area means we're out the door and on the ground digging lakes and ponds before the plans are 100% finalized. With Smart Construction Remote, I'm able to update changes to our models and remotely send them to our GPS-equipped Komatsu machines without having to separately drive to each machine and install the file with a thumb drive.

"As soon as I upload the file to the machines, the operator can see the new plans and get to work," continued Hendra. "It's a huge time saver because I'm not driving an hour to each job site and tracking down each machine — it's just the stroke of a key, and I've saved myself half a day of work. From the operator's perspective, they're not wasting half a day following plans that have already changed. You can see how the cost savings and efficiency quickly build when you have multiple changes throughout the life of a project."

Expanding equipment

Tomahawk Construction currently utilizes approximately 10 Komatsu intelligent Machine Control (iMC) dozers and excavators.



A Tomahawk Construction operator cuts a road in the early stages of a project with a Komatsu D51PXi-24 iMC dozer. "In our experience, nothing works as well as Komatsu," said Project Surveyor Randall Hendra. "With Smart Construction Remote, I'm able to update changes to our models and remotely send them to our GPS-equipped Komatsu machines without having to separately drive to each machine and install the file with a thumb drive."





Project Surveyor Randall Hendra monitors Tomahawk Construction's Komatsu iMC machines as well as its Topcon-equipped machines from his desk with Smart Construction Remote. "Between tracking machines, uploading files and remotely supporting our operators, Smart Construction Remote paired with Komatsu iMC equipment has greatly increased our efficiency," said Hendra.

Soon, the firm will have about 30 machines capable of utilizing Smart Construction Remote because it works on Topcon systems as well as iMC machines.

"We've tried all brands of GPS-equipped machines, and in our experience, nothing works as well as Komatsu," stated Hendra. "You don't have to fix cables or masts or make little adjustments — you just set the dozer up, and it runs. You're also able to track where your machines are located, which impacts everything from efficiently moving machines between jobs to helping technicians locate machines for routine maintenance."

Operator support

When an operator has a question about a project, Hendra can often use multiple Smart Construction Remote capabilities to resolve the problem quickly.

"Through Smart Construction Remote, on the monitor in my office I'm able to see exactly what an operator sees on the screen in their cab," explained Hendra. "If an operator calls

and explains that he's grading a road and it's not a 2% cross slope, I'm able to see what his screen shows and see exactly where he is located on the job site. I can take that information and compare it to the model, make any changes, then upload a new model to the machine with the proper cross slope without leaving my desk."

Hendra added, "I can also control the screen for any machine. If an operator gets into a different machine than they typically run and wants the screens to look a specific way, I can remotely adjust that for them. I can also update menus and delete old files to make sure our operators are using the most up-to-date version. Between tracking machines, uploading files and remotely supporting our operators, Smart Construction Remote paired with Komatsu iMC equipment has greatly increased our efficiency."

***The opinions expressed here are from the end users who are quoted. ■*



Watch the video

Preventive maintenance clinics ensure your equipment is calibrated to optimum levels for high production



Chris Wasik,
Director,
Life Cycle Solutions,
Komatsu

Many factors impact your equipment's productivity and health, including ambient temperatures, the operating environment, operator habits, regular maintenance, the quality of fluids and filters, and working applications.

Ignoring any of these can accelerate component wear and cause costly, unexpected failures as well as unplanned, extended downtime. Overall performance and operating efficiency can also be affected when pressures and speeds cause longer cycle times. A heavier burden on mechanical systems drives up fuel burn rates too.

A thorough preventive maintenance (PM) clinic provides a detailed inspection of your equipment, including a look inside to measure pump pressure, engine speeds, blowby, idle and cycle times, oil quality, internal component wear, and more.

Minimize downtime

"The United States Department of Energy estimates a good proactive preventive

maintenance program paired with thorough machine recalibration and inspection, such as a PM clinic, can significantly save operations and maintenance costs compared to a reactive approach during a machine's life," said Chris Wasik, Director, Life Cycle Solutions, Komatsu.

When pressures or speeds deteriorate beyond adjustable ranges, planned replacement strategies for key parts or components can bring the machine back to a nearly new level of performance as well as minimize repair costs and downtime, according to Wasik. Measurements taken are compared to Komatsu's recommended operating ranges and can usually be calibrated to optimum levels for better machine performance.

"For a more detailed list of system measurements and checks performed during a standard PM clinic, consult your specific machine's shop manual," Wasik advised. "Check with your Komatsu distributor or dealer for specials and incentives when they conduct a PM clinic on your Komatsu equipment." ■

A preventive maintenance (PM) clinic provides a detailed inspection of your equipment. Measurements are compared to Komatsu's recommended operating ranges and can usually be calibrated to optimum levels for better machine performance.





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Want grade control for your standard excavators? Here's a solution with an added bonus

If you have an excavator without GPS grade control, you may be missing out on time and costs savings. What if there was a new solution that reduces staking, surveying and over-digging and allows you to do it cost-effectively with an added bonus?

"The new Smart Construction Retrofit Kit gives customers who want an entry-level, indicate-only system a solid choice," according to Ron Schwieters, Senior Product Manager, iMC and Hardware, Komatsu. "It is three-dimensional, so operators get the advantage of seeing where they are on the project, as well as their relation to target elevation."

Multiple components make Smart Construction Retrofit highly accurate, Schwieters added. The kit includes four inertial measurement units (IMU) mounted on the bucket, arm, boom and frame of the excavator. Two GNSS antennas for GPS are on the rear. There are options to transfer design data to and from the Smart Construction Cloud.

"Users download our Smart Construction Pilot app from the Google Play Store, and use it with their connected device," Schwieters noted. "They can set audio alerts that will change tones the closer they get to finish grade. That, along with the visual representation on the app, helps

keep operators from digging too deep, saves valuable time and lowers costs."

A key differentiator

Schwieters said that the added bonus of Komatsu's Smart Construction Retrofit Kit is a payload system.

"As you load the bucket, it weighs the material, and operators see that in real time," said Schwieters. "If you're loading trucks, that helps ensure you are putting the proper amount of tonnage in and not overloading or underloading. Typical aftermarket systems don't offer that. It's a great feature for quarries, batch plants and construction projects to accurately monitor materials loaded onto trucks."

To remotely track progress, that information and production data can be sent to project managers and other stakeholders using other Smart Construction solutions. Design changes can be sent to the machine using the cloud.

"The Smart Construction Retrofit Kit can be used with practically any brand or size of construction excavator," Schwieters noted. "Installation can be done easily by your distributor or dealer. We recommend you contact them for more information about this valuable solution." ■



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



Watch the video

The Smart Construction Retrofit Kit gives customers who want an entry-level, indicate-only system a solid choice. It is three-dimensional, so operators get the advantage of seeing where they are in relation to target elevation, and the payload system is an added bonus.



Incorporate the right Smart Construction solutions by assessing your operations and goals



Jason Anetsberger,
Director,
Customer Solutions

Construction technology continues to play an ever-increasing role on today's job sites and in the office. Companies and their fleet managers can use technology from pre-bid to final closeout to help improve productivity, increase efficiency and reduce costs.

"If you are not using technology, you are being left behind," said Komatsu's Jason Anetsberger, Director, Customer Solutions. "When aftermarket GPS grading was introduced, it reduced the amount of time to get to grade. Intelligent machines now have it integrated, which is further reducing costs and increasing productivity because you don't have hardware on the machine that can get damaged or stolen, and you don't have to take time to put up and take down masts and cables."

In addition to intelligent Machine Control (iMC) excavators and dozers, Komatsu offers a suite of Smart Construction solutions to help you maximize job site and personnel tracking as well as use the data to make faster decisions on how to best utilize your assets. Smart Construction specialists can help you determine which are the best options for you.

Anetsberger noted that in addition to intelligent Machine Control (iMC) dozers and excavators, Komatsu's suite of Smart Construction solutions includes Smart Construction Dashboard, Design, Drone, Field and Remote. While iMC machines help with excavation and earthmoving, the others assist with tracking production and progress, managing time, and remotely supporting field operations, including updating plans from the office directly to iMC machines.

"With the number of Smart Construction solutions we have, now is a great time to get connected," stated Anetsberger. "Adopting the right solution to give you maximum value involves assessing your operations and determining which ones are the right fit. Start with the low-hanging fruit that's going to bring you the fastest payback or reward."

As an example, Anetsberger said if you are not already using iMC machines, that may be a great starting point. With automatic features, they are proven to reduce staking, get you to grade faster, decrease material costs and help new operators become more effective faster.

What's your pain point?

"If you have iMC machines, the next step is determining your biggest pain point," commented Anetsberger. "Do you want faster, more accurate mapping and progress tracking? Do you want to move from 2D to 3D digital design files? Do you want to combine drone data with 3D design data to confirm quantities? Do you want better labor, machine and material cost tracking? Do you want to save time and fuel costs by remotely supporting operators without driving to the job? Do you want better fleet management? Maybe it's all of the above."

Anetsberger emphasized that Komatsu and its distributors have Smart Construction specialists that can help determine which solution is the best fit.

"We encourage anyone who wants improvement in their operations and bottom line to reach out for more information." ■



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Komatsu's HD1500-8E0 helps increase production at quarry, aggregate and mining operations, keeps operators comfortable

Does your operation need an efficient 150-ton haulage solution that can deliver performance on grade while providing energy-saving technologies to help achieve lower fuel consumption? Komatsu's rigid frame off-highway haul truck, the HD1500-8E0, is purpose-built for mining, quarry and aggregate applications.

Delivering performance with a 1,570-net-horsepower, Tier 4 Final Komatsu engine, the HD1500-8E0 helps drive high levels of productivity. It has a seven-speed, fully automatic transmission with two configurable reverse speeds. Komatsu's advanced transmission with an optimum modulation control system provides electronic shift control with automatic clutch modulation. Optimized clutch engagement at every gear provides smoother shifting without losing torque, which offers a comfortable ride and helps reduce material spillage.

To promote productivity and control the life cycle costs of the truck, an integrated payload meter manages the payload of each hauling cycle by analyzing production volume and the working conditions of the machine.

"When designing the HD1500-8E0, Komatsu's focus was improving performance and durability and helping reduce total cost of ownership," said Sebastian Witkowski, Product Manager, Komatsu. "In addition to best-in-class speed on grade, and downhill brake retarding performance, the truck has a host of new efficiency and operator environment technologies."

The HD1500-8E0 is equipped with hydraulic, wet, multiple-disc brakes on all four wheels that act as a highly responsive retarder, providing operators with confidence at higher speeds when traveling downhill. Operators can also control their downhill descent by setting a desired travel speed with the automatic retard speed control

(ARSC), which applies the brake retarder to maintain the desired setting.

Easy maneuverability

With a tight turning radius of 36 feet, 9 inches, operators in the HD1500-8E0 can maneuver in and out of tight spaces when spotting to be loaded or positioning to dump. Komatsu's Traction Control System (KTCS) provides excellent control in loose or slippery haul road conditions by monitoring the rear wheels for slippage and automatically applying pressure to the independent wheel brake assemblies.

The redesigned cab features a seat heater and ventilator, and the hydropneumatic suspension gives operators the smooth and comfortable ride they need for long shifts. Designed with a convenient layout, the ergonomic cab is equipped with an air-suspension seat to help dampen vibrations, and the low-noise engine, fan clutch and cab sealing provide a quiet, low-decibel operating environment. ■

Komatsu's new HD1500-8E0 mechanical haul truck delivers high performance with less fuel consumption than its predecessor. It is purpose-built to increase production and efficiency in multiple applications.



Sebastian Witkowski,
Product Manager,
Komatsu

Quick Specs

Model
HD1500-8E0

Net Horsepower
1,570 hp

Operating Weight
550,229 lbs.

Rated Payload
153.2 tons

Heaped Capacity
102 cu. yd.





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Precise control for the perfect crown

A 2D cross slope system on a motor grader allows operators to control the slope angle more easily for the entire length of the moldboard while effortlessly adjusting on the fly. That's why the system is a standard feature on Komatsu GD655-7 motor graders.

The operator controls the height of the moldboard by adjusting just one end while the 2D system automatically maintains the desired cross slope angle. This allows operators to focus more on the leading or trailing end of the blade and the machine's travel path. Automatic or manual mode can be set for either end of the moldboard.

With the 2D cross slope system, operator fatigue and stress can be reduced when making

precision passes. The system also allows for quick slope angle when cutting road crowns and shoulders. It works even if the machine is articulated and does not require daily recalibration.

Insider Tip: "The memory presets and the slope match features make it easy for the operator to quickly maintain slope angle when returning in the opposite direction," said Nathan Repp, Product Marketing Manager, Komatsu. "One of the memory presets could be a mirror angle setting, and the slope match setting means that the operator can set the blade on an existing slope and use it as the base setting for the moldboard cross slope angle." ■



Genuine batteries for proven performance

If you're looking for a battery that's proven to perform under nearly all circumstances, Komatsu recommends its genuine Komatsu batteries for its machines. They undergo numerous quality-control checks and are manufactured to stand up to challenging conditions.

With proper maintenance, Komatsu batteries typically last three years or longer — even under rigorous demands. A wide range of 6- and 12-volt sizes are available, as well as less common types through General Equipment & Supplies Inc. Komatsu supports all batteries with its standard parts' warranty, which is one or two years depending on the part number.

Insider Tip: "If you think Komatsu genuine batteries are great in our machines, consider them for other uses," said Komatsu's Veronica

Vargas, Product Manager, Parts. "They also power class 1 through class 8 on-highway trucks, boats, RVs, power sports products, golf carts and more." ■



Want to extend your PC360LC-10's service life?

Remanufactured engines can provide significant up-front cost savings compared to new ones. A Komatsu Genuine Reman engine also helps maximize the life of your equipment.

Komatsu now offers a completely remanufactured engine for its popular PC360LC-10 excavator. This valuable option comes with a standard one-year, unlimited-hours warranty. A four-year, 10,000-hour Komatsu Genuine Reman

Component Quality Assurance warranty is also available.

Insider Tip: "This is a fully remanufactured engine designed specifically to fit in the PC360LC-10," said Komatsu's Goran Zeravica, Senior Product Manager for Reman. "It is available by contacting your local Komatsu distributor, and we recommend installation by their highly skilled and trained technicians." ■



Ways to retain employees during a labor shortage in the construction industry

To overcome the labor shortage in the construction industry, having a focus on employee retention and creating strategies to maintain your current workforce is paramount.

While the number of available construction projects continues to increase, a recent survey from the Associated General Contractors of America (AGC) found that 91% of construction firms are having issues finding and hiring employees.

Being short staffed can reduce production and increase costs, so the entire industry is feeling the effect.

"Construction workforce shortages are severe and having a significant impact on construction firms of all types, all sizes and all labor arrangements" said AGC Chief Economist Ken Simonson. "These workforce shortages are compounding the challenges firms are having with supply chain disruptions that are inflating the cost of construction materials and making delivery schedules and product availability uncertain."

Creating a quality environment for employees can help you get the most out of your current workforce and make sure that they stick around. While compensation is important to people, there are other ways to create a compelling workplace that employees want to remain a part of.

One of the most important ways to retain quality employees is to keep them engaged.

Identify employee engagement

One of the most important ways to retain quality employees is to keep them engaged. In Reno, Nev., Aspen Earthworks Inc. takes a proactive approach to engaging with its staff.

"We recognize our employees on a weekly if not bi-weekly portion," said Aspen Earthworks President Ryan Dustin. "The employees get their recognition sent throughout the company. Not only are we recognizing them, but it also serves as a model and benchmark for other employees."

Invest in your employees

From benefits to leadership development and training, showing that you want to take care of your employees and help them grow is an important aspect in internal retention to overcome labor shortages in the construction industry.

"You need to make sure to offer all the benefit packages you can," said Dustin. "My company is 6 years old, but we offer 401(k), retirement and all insurances. We offer a competitive wage for the market, and we treat our people well. We know that our core foundation is our people. We respect that and continue to move forward with the same amount of respect as we started from day one."

Aside from benefits, programs that develop leadership skills for in-house employees show a commitment to the staff that can pay dividends by creating positive leaders that aid in employee retention.

Plus, applicable training programs develop employees' skill sets, broaden their knowledge, and keep the workplace from feeling stagnant.

"One thing that we are doing here at Blue Mountain to retain employees is to cross-train," said Richard Stringham, Plant Manager at Blue Mountain Minerals in Columbia, Calif. "There are those that come to work and just want to do one job, and that's fine. We need those people. There are those that want to move up and around. I need those people as well, so my focus in the last 18 months that I've been here has been cross-training. They want new skills, and I appreciate them wanting new skills. I can use them after hours on weekends in jobs





From benefits to leadership development and training, showing that you want to take care of your employees and help them grow is an important aspect in internal retention to overcome labor shortages in the construction industry.

that they don't do all week, so it's something different for them. It's a two-way street that we provide the best job and environment for them to work in."

Find the right employees

It's important to think about how you can retain a potential employee during the hiring process. For companies like C.A.S.E. Construction Inc., which is based in Edinburgh, Ind., the strategy has been to prioritize character over experience when hiring.

"If we have the right people, then the company will always find work," said Jesse Smith, Vice President of C.A.S.E. Construction. "They don't need to have the knowledge right now, but they need the character we're looking for."

That character was found in operator Jesse Walker, who began his career working in diesel engine testing in Columbus, Ind. For him, excavating was a side business, and he mostly did smaller landscaping jobs. However, he decided to make it his full-time profession with C.A.S.E. Construction.

"I was brought in as a younger guy to learn from the ground up and create a foundation for the future of this company that I can be a part of," said Walker.

Bringing people into your company with adjacent experience can allow you to quickly reskill or upskill them, so they can do jobs safely and with a level of expertise.

Finding new employees by appealing to new demographics can also yield great results. With the majority of the construction industry being white and male, according to a McKinsey & Company report, there are a lot of different demographics companies can still reach. Only 11% of the country's construction workforce consists of women, according to the U.S. Bureau of Labor Statistics.

"It's absolutely an untapped market," said Brian Turmail, Senior Executive Director of Public Affairs for AGC, in an interview with CBS News. "We are fighting workforce shortages with one hand tied behind our back."

Since beginning a digital outreach program this year to attract women to the industry, AGC has received tens of thousands of applications from women interested in pursuing a career in construction.

Lastly, it's crucial to include and inform the younger generations because they are the future. You can appeal to students through recruiting programs that also engage with parents and guidance counselors. Show teenagers and young adults that the construction industry is a viable career option that can be just as rewarding as a four-year university degree. By developing relationships and connections with prospective members of your team, you can yield a new pipeline of employees for your company and combat the labor shortage in the construction industry. ■



Editor's Note: This is an excerpt. Access the full article here: <https://www.komatsu.com/blog/2022/employee-retention-in-the-construction-industry/>.

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