Kiewit

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SINCE 1884

the magazine of kiewit corporation

2025 / Quarter 1

KIEWAYS

SPECIAL SAFETY ISSUE

CONTROLLED POWER
When a grinder pinches or stalls, it can kick back, potentially striking the operator. Kiewit partnered with DEWALT on its PERFORM & PROTECT™ line whose new grinders feature anti-rotation and braking mechanisms that detect these bind-ups, automatically stopping the motor and engaging a brake.

Kiewit

Kiewit is one of North America's largest and most respected construction and engineering organizations. With its roots dating back to 1884, the employee-owned organization operates through a network of subsidiaries in the United States, Canada, Mexico and Guam. Kiewit offers construction and engineering services in a variety of markets including transportation; oil, gas and chemical; power; building; water; industrial; mining and marine. Kiewit had 2024 revenues of $16.8 billion and employs 31,800 staff and craft employees.

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KIEWAYS
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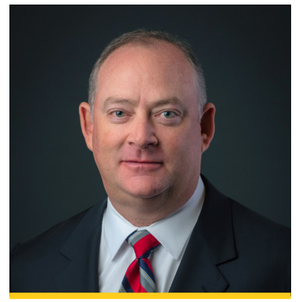

SMARTER TOOLS, SAFER PEOPLE

For years, Kiewit has led the industry in safety — and today, we're harnessing cutting-edge data and technology to safeguard our people like never before. This means we're not just responding to risks; we're predicting and preventing them with real-time insights, smarter equipment and innovative tools.

This special issue of Kieways explores how we're using these advancements to uphold our most important responsibility: making sure that Nobody Gets Hurt.

From head protection to hand tools, the gear we rely on is getting smarter and safer. See why Kiewit made the shift from traditional hard hats to the next generation of safety helmets (page 6). Plus, we'll show you how innovative hand tools are minimizing the risk of injuries and giving our teams much more control (page 10).

What if equipment could stop itself before ever reaching danger? On page 12, we'll show you the invisible guardrails keeping our crews and equipment safe without slowing them down. We'll also visit a project in Texas that's collecting real-time data from above to make sure everyone stays safe on the ground (page 16).

Finally, we're keeping our eyes on both the road and technologies ahead. On pages 20 and 22, you'll read about the partnerships and advancements in seatbelt reminders, collision prevention and real-time personnel detection that are helping prevent accidents on the job.

This special issue of Kieways illustrates how safety isn't a box to check – at Kiewit, we are fully committed to making sure our people go home safe every day.

RICK LANOHA
President and Chief Executive Officer

SEATBELT SIGNAL
Kiewit is retrofitting existing equipment with safety features to improve seatbelt usage, including purple strobe lights that alert ground crews when equipment is operated without a seatbelt.

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From seatbelt reminders to personnel detection, Kiewit's latest equipment upgrades are making jobsites safer for operators and crews on the ground.

KIEWIT NEWS

What began in 1884 with two hard-working brothers has grown into a construction and engineering industry leader. As a multi-billion dollar organization, Kiewit can tackle projects of all sizes, in any market. Here's a brief collection of recent news and information from around the company.

COLD HARD HAULERS

When winter hits Tok, Alaska, extreme cold isn't just a challenge — it's a way of life. With temperatures plunging to -40°F and wind chills that can make it feel like -100°F, keeping equipment running takes serious ingenuity.

Frost builds up fast, as seen on this haul truck, where ice accumulates in just a few hours. But Kiewit crews are prepared. Using heaters and parachutes — a specialized technique to trap heat around engines — they keep vital machinery operational even in the most brutal conditions.

For these crews, freezing equipment is just part of the job. And with the right tools and expertise, the work never stops — no matter how low the temperature drops.

OUR VALUES IN ACTION

PEOPLE INTEGRITY EXCELLENCE STEWARDSHIP

SAFETY RECORD STANDS STRONG IN ONTARIO

Even in the face of harsh weather, tight deadlines and a remote location, Kiewit has successfully completed the Little Long Dam Safety Project in northern Ontario, reinforcing crucial infrastructure along the Mattagami River.

As the general contractor for this essential project, Kiewit expanded and rehabilitated the Adams Creek spillway, increasing its spill capacity to enhance dam safety, particularly in extreme weather conditions. Since work began in 2020, crews have installed four new sluice gates — large, adjustable gates used to control water flow through the spillway — built two new bridges flanking the sluiceway, and strengthened the existing structure — all with safety at the forefront.

A remarkable 2.1 million work hours were logged on the project without a single lost-time incident, a testament to the crew's commitment to safety and excellence.

Kiewit celebrates the dedicated team that made this achievement possible, proving once again that no challenge — whether in weather, distance or complexity — is too great to overcome.

In 2024, Kiewit's **27 safest projects** recorded zero workplace incidents, achieving a combined

11.4M

hours worked **without a single recordable injury**.

PAGES FROM THE PAST

FROM BULLETIN TO INDUSTRY BEACON: KIEWAYS CELEBRATES ITS 80TH YEAR OF PUBLICATION

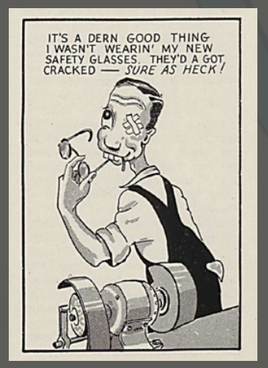
This year, Kieways celebrates 80 years of connecting and inspiring Kiewit employees, clients, communities and industry peers, reflecting a legacy of innovation and growth. The first issue, published in 1945, marked a pivotal moment as the company shifted from wartime efforts to peacetime progress. It highlighted Kiewit's role in post-war industrial expansion, highway development and public works while showcasing employee contributions.

In its early years, Kieways served primarily as an internal publication, keeping employees informed and connected by sharing project updates, company milestones, strategic goals and technological advancements. But as Kiewit grew, so did the role of Kieways. Today, the magazine has become a communication tool that not only connects Kiewit's workforce and retirees but also engages clients, industry peers and partners. It showcases the company's expertise, cutting-edge innovations and best practices, helping to drive conversations that shape the industry. One topic that has remained a focal point of the publication since its first issue is safety.

From 1958 to 1986, Kieways dedicated entire issues annually to safety, reinforcing Kiewit's commitment to accident prevention, training and continuous improvement. These issues provided insights into best practices, celebrated safety milestones and shared real-world lessons from the field.

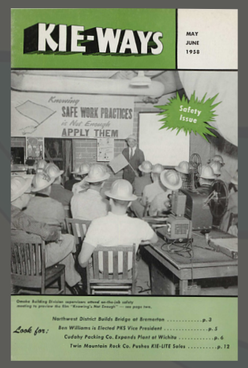
As we celebrate this milestone year, we reaffirm that safety is not just part of Kiewit's history — it is the foundation of its future. The lessons of the past 80 years have shaped Kiewit's safety culture, and the next generation of construction professionals will build on that legacy. Through training, innovation and an unwavering commitment to keeping people safe, Kiewit will continue to set the standard for safety in the construction industry, and Kieways will be there to tell the story.

1945



This comic appeared in the first issue of Kieways, published in 1945. Since its inception, the magazine has served as an important tool for communicating safety topics across the company. While communication tactics may have changed, the importance of the message remains steadfast.

1958



This 1958 issue of Kieways was the first official "safety issue" and featured Omaha employees attending an on-the-job safety meeting to preview the film "Knowing's Not Enough". The film introduced the concept of the four "imps" that prevent people from acting safely.

1962

This safety issue, published in 1962, highlighted two jobs that had both received recognition for reaching 1 million man-hours without a lost-time injury: Thule Air Base in northern Greenland and the Niagara Falls Hydroelectric Project.

THE NEW ARMOR OF MODERN CONSTRUCTION

Advanced helmets and injury-reducing tools are rewriting the rules of jobsite security.

Tools and hard hats are jobsite essentials, but advancements in technology are making them safer and more effective. As part of its Nobody Gets Hurt safety commitment, Kiewit is implementing these technologies to enhance worker safety and efficiency.

HELMETS

SAFETY HELMETS, NOT HARD HATS

Workers in the U.S. construction industry were first required to wear hard hats in 1931 during the construction of the Hoover Dam. Early models, made of aluminum, fiberglass and later plastic, were designed to protect against top-of-head impacts. In 1948, Kiewit became one of the first contractors to require the same of its workers.

Today, the hard hat remains a prominent symbol of the industry and a safety staple on jobsites. However, as technology evolves, the industry is moving away from the classic hard hat and embracing safety helmets that offer better protection. Just as Kiewit led the way in 1948, the company is once again at the forefront of adopting these new advancements.

The American National Standards Institute (ANSI) sets safety standards for personal protective equipment (PPE), including head protection, to minimize workplace hazards and injuries.

In 2024, Kiewit adopted ANSI-rated Type II safety helmets across all jobsites. These safety helmets have enhanced side impact resistance, improved impact absorption and chin straps.

"There is an obvious benefit to wearing a helmet," said Rob Murphy, Kiewit district safety manager. "The now, better technology has led to significant improvements in safety effectiveness for workers."

"We pride ourselves on safety. And if there is a better product out there that we should be using, that's exactly what we will do."

JOHN CLOUTIER
Kiewit Project Safety Director

360-DEGREE PROTECTION

ANSI-rated Type I hard hats only have to meet standards for top-of-head impacts. However, the Type II safety helmets must meet standards for top, front, back and side impacts.

John Cloutier, Kiewit project safety director, said, "It's very compelling when you look at the reasons why we are making the shift. We take this new protection seriously."

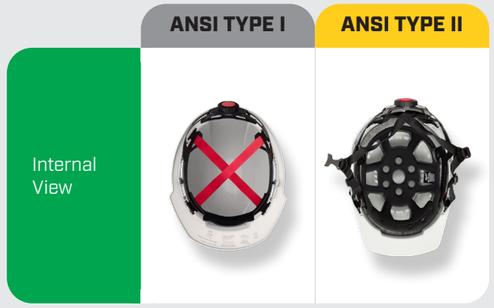
These helmets are engineered to absorb and dissipate an impact's energy, from all angles, minimizing the force transmitted to the wearer's head.

Kyle Anderson, senior project manager at Milwaukee Tool and an expert in head protection, emphasizes the importance of these advancements:

A safety upgrade

Head protection is categorized into two types: Type I and Type II, based on their impact resistance. Due to their superior ability to protect workers from hazards, Kiewit made the decision to adopt Type II helmets across all jobsites in 2024.

Additionally, head protection is classified into three electrical resistance classes: Class G, Class E and Class C. Class C is conductive, while Class G and Class E offer varying levels of electrical insulation. Insulated helmets are commonly used in environments where electrical hazards may be present.



	ANSI TYPE I	ANSI TYPE II
Force Transmission **TOP**	✓	✓
Impact Energy Attenuation **TOP**	✗	✓
Impact Energy Attenuation **SIDE**	✗	✓
Penetration **TOP**	✓	✓
Penetration **SIDE**	✗	✓

ANSI & CSA CLASSES		
Class G - General **UNVENTED**	Limited voltage testing up to 2,200 volts.	G 2,200 Volts
Class E - Electrical **UNVENTED**	Tested against shocks/ burns up to 20,000 volts. Commonly used by electrical and utility trades.	E 20,000 Volts
Class C - Conductive **VENTED**	No protection against electrical hazards. Lightweight and comfortable with vents for temperature reduction.	C 0 Volts

"Over a third of jobsite fatalities in the construction industry occur from slips, trips and falls causing side- or back-of-head impacts. A lot of those injuries and deaths can be prevented or limited by wearing a Type II helmet."

MATERIALS THAT MATTER

Type II helmets have an outer shell crafted from high-impact-resistant materials and shock-absorbing inner liners to dissipate impact force.

"Studson helmets are manufactured with acrylonitrile butadiene styrene (ABS), an impact-resistant, lightweight thermoplastic," said Adam Bookwalter, chief revenue officer at Studson.

Much like a bicycle helmet, the inner padding of a Type II sits suspended within the helmet, giving it a higher absorption rating. Studson uses its Koroyd material in the interior of safety helmets to provide advanced energy absorption. Upon impact, Koroyd compresses instantly, effectively reducing and dissipating the force transferred to the wearer's head.

"Koroyd is lightweight and more breathable than standard expanded polystyrene (EPS) foam," explained Bookwalter. "Because we use a combination of Koroyd and standard EPS foam, you get a great fitting helmet that is also relatively lightweight and breathable."

Non-conductive materials like fiberglass or plastic are used to construct the helmet's shell. This is vital if the wearer comes in contact with live wires or equipment. ANSI-certified helmets receive an electrical resistance rating based on material and the helmet's vents.

To customize helmets, workers can attach face shields, earmuffs, sun protection, headlamps and other accessories to aid in working under varying conditions.

These advancements have saved lives.

"We receive testimonials almost weekly about helmets preventing serious injuries," said Anderson.

Both Milwaukee Tool and Studson emphasized the significant role that field feedback and third-party testing have played in advancing helmet technology and materials.

SECURING SAFETY

While traditional hard hats effectively protect against falling objects, they are less effective in preventing injuries from more common hazards such as trips, slips and falls.

Chin straps keep the safety helmet securely in place, reducing the risk of it being dislodged in the event of a fall or impact. This simple feature can make all the difference.

In 1961, a Kiewit employee displays the dented hard hat that saved him from injury while working as an oiler on a bridge project in Butte, Montana. A metal form panel blew off a pier cap and struck him on the head.

"Look at crews that work at heights or next to traffic. Essentially, if you had a serious incident where someone fell or was hit by a vehicle, their head would be unprotected because the traditional hard hat would come off," explained Murphy.

If a worker slips and hits their head on a hard surface, a hard hat without a chin strap could be dislodged, leaving them vulnerable to injury.

"We pride ourselves on safety," said Cloutier. "And if there is a better product out there that we should be using, that's exactly what we will do."

TOOLS

TOOLS THAT PROTECT

Power tools are essential for many construction tasks, but they can also pose significant safety risks. Dust, vibration, tool drops, false starts and loss of tool control are common hazards that can lead to injuries and downtime. These issues not only impact worker well-being but can also slow down productivity.

"We see these common injuries time after time across the industry," said Mike Belford, Kiewit structures manager. "We knew we needed tools designed to prevent them."

To address these challenges, Kiewit is turning to innovative tools designed with safety at the forefront, through a close partnership with DEWALT, one of the top tool brands in the industry.

DEWALT currently produces a line they call PERFORM & PROTECT™. This system focuses on improving both worker protection and tool performance by embedding safety features into the design from the outset.

1. Improved concrete grinders feature integrated dust shrouds and vacuum attachments, reducing airborne particles and minimizing exposure to harmful silica dust. For enhanced control and to reduce fatigue, each grinder also has an enhanced kickback brake and an anti-vibration side handle. 2. Similar to concrete grinders, the PERFORM & PROTECT™ rotary hammers contain a built-in dust extraction system and enhanced vibration control, allowing for the collection of dust at the source and more comfortable extended use when drilling into concrete. 3. The ergonomic PERFORM & PROTECT™ band saw cuts smoothly through a metal strut channel, providing precise control while reducing user fatigue. Its dual-activation trigger requires the worker to provide input from both hands, which prevents accidental starts.

"The DEWALT PERFORM & PROTECT™ system focuses on high-performance solutions with added protection in areas like dust, vibration, control and drops," said Frank Mannarino, president, brand partnership & customer experience at DEWALT.

One key feature is the anti-rotation system, found in DEWALT drills and grinders, which reduces the risk of wrist injuries by preventing unexpected tool rotations, such as when a drill binds up. In these instances, the tool's rotation is automatically stopped, allowing workers to maintain better control. Similarly, grinders are equipped with both anti-rotation and braking mechanisms that stop the motor and apply a brake to the accessory when a pinch or stall is detected. This combination minimizes the risk of injury while enhancing tool control.

A particularly valuable feature in tools like band saws and grinders is the dual-activation trigger, which requires input from both hands to operate. This safety feature significantly reduces the chances of accidental starts, which can happen when a worker's focus is momentarily diverted.

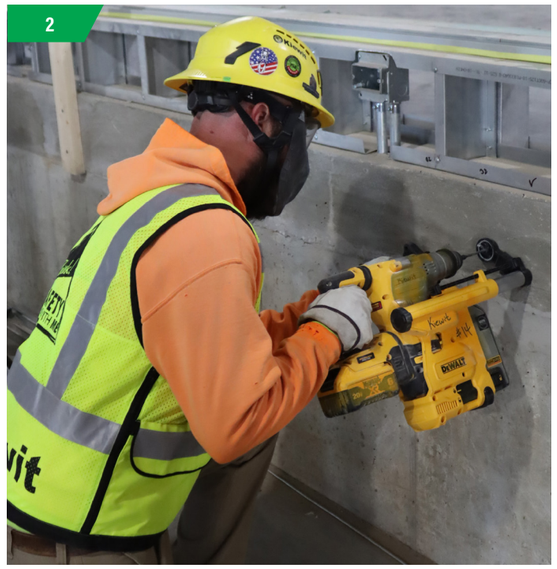
"These features stop events from happening before they turn into an injury, whether it's an accident, a lack of knowledge or someone trying to take a shortcut," said Belford.

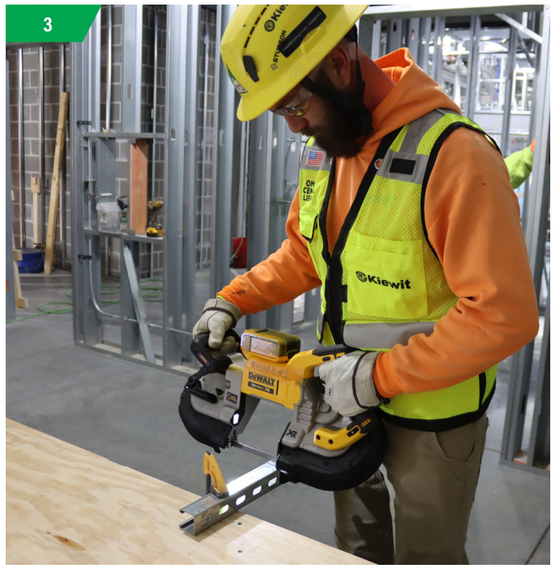
When working at heights, the risk of tools or batteries falling is ever-present. DEWALT addresses this by equipping certain tools and batteries with lanyard attachment points. These points allow workers to securely tether their tools to rigid structures, preventing accidental drops that could lead to serious injury or damage.

In addition to protecting against drops, DEWALT has made strides in reducing the long-term health risks associated with tool use, particularly vibration. Prolonged vibration exposure can lead to a range of issues, from numbness, pain and increased cold sensitivity in the hands to more severe, long-term effects such as damage to nerves, muscles and joints. DEWALT's SHOCKS Active Vibration Control™ system, integrated into rotary hammers, reduces vibration at the handle, providing greater comfort and significantly lowering the risk of vibration-related injuries.

Belford explained that these features are also making the job a bit more comfortable.

"With these integrated vibration features, employees no longer need to wear thick vibration gloves, making their





work more comfortable and less cumbersome," he said.

Dust exposure is another significant issue on construction sites, particularly during activities such as drilling, cutting and grinding concrete. This dust not only reduces visibility, increasing the risk of injury, but also poses health hazards if inhaled. Additionally, excessive dust can lead to increased maintenance needs for tools.

Workers are not the only ones at risk. During concrete grinding, third-party pedestrians near the site may also be exposed to harmful silica dust if it is not properly controlled at the source.

DEWALT's dust extraction systems help mitigate these risks by capturing this harmful dust. This is crucial in meeting OSHA compliance standards for jobsite safety. The addition of hollow core SDS drill bits, which clean the hole while drilling, enhances the dust control process and improves productivity by eliminating additional steps.

Belford also highlighted that because these solutions are integrated into the tools directly, there are fewer pieces to haul from location to location.

These innovations — whether preventing wrist injuries, reducing vibration, minimizing dust exposure or safeguarding against dropped tools — are all essential components of a safer, more efficient work environment. By addressing these common hazards head-on, Kiewit and DEWALT are ensuring that workers and communities are better protected, not just from immediate accidents, but from long-term health risks as well. The focus on integrating safety features directly into the design of each tool means that these solutions are not only more effective, but also more convenient for workers on the ground.

As Mannarino reflected, the collaboration with Kiewit has led to significant improvements in tool safety, and it is ultimately about making a real difference on the jobsite.

"DEWALT's mission statement is to make our users safer and more productive on the jobsite," he said. "Partnerships with companies like Kiewit that are at the forefront of safety have pushed us to develop better solutions for those users."

ALL IN A DAY'S WORK

By integrating advanced safety technologies into both PPE and tools, Kiewit continues to lead the industry in safeguarding its workers. The adoption of Type II safety helmets and the partnership with DEWALT to enhance tool safety highlight the company's dedication to reducing on-the-job injuries and long-term health risks. As the construction landscape evolves, Kiewit's proactive approach makes sure that safety is not just a priority, but a continuous, forward-thinking commitment. With each innovation, Kiewit reaffirms its promise to provide the safest work environment possible, setting a standard for others to follow and ensuring its teams can focus on what matters most — getting the job done safely and efficiently. **K**

THE INVISIBLE [GUARDRAILS]

Kiewit is pushing boundaries by embracing technology that creates invisible guardrails, helping protect its people and its projects.

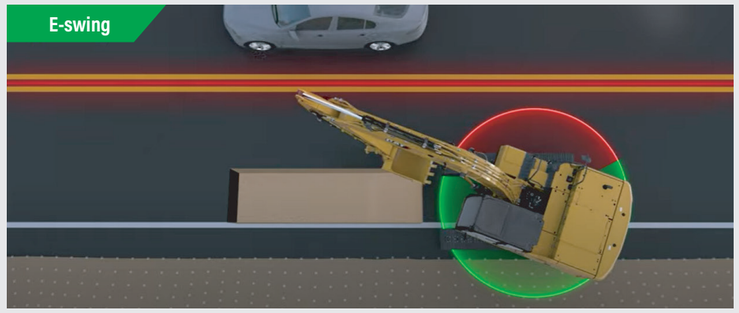
Construction sites are bustling hubs of activity, where precision and safety must go hand in hand. In these environments, even a small misstep can have significant consequences such as injuries or property damage. To address these challenges, Kiewit is turning to cutting-edge tools like e-fencing and overhead proximity sensors. These technologies are reshaping safety practices, providing innovative ways to protect workers and streamline operations.

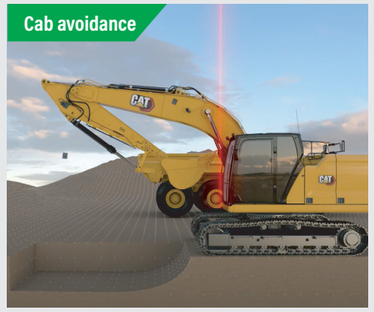
HOW E-FENCING WORKS

E-fencing, sometimes referred to as geofencing, provides a virtual boundary system for heavy machinery, by using sensors to define operational zones. This system can restrict swing angles, limit the height of equipment and prevent encroachments into hazardous areas. Essentially, this 2D "electronic fencing" ensures that operators stay within predefined safe operating boundaries, minimizing risks and eliminating the need for physical barriers. Its key features include:

- **E-swing**: Restricts the machine's swing range
- **E-wall**: Prevents extensions beyond a set boundary
- **Cab avoidance**: Blocks attachments from entering the cab area
- **E-ceiling and e-floor**: Limits upward and downward movements to prevent excessive height or depth

E-fencing technology is primarily integrated into Caterpillar





Images courtesy of Caterpillar Inc.

(CAT) excavators. The term "e-fencing" was coined by CAT, and provides the core functionality in their machines, setting the standard for this type of technology on construction sites.

PROXIMITY TO POWER

Overhead proximity sensors serve as an additional safety measure, particularly in environments with live powerlines. Kiewit is using this technology on the Mill Creek 5 Natural Gas Combined Cycle (NGCC) project in Louisville, Kentucky. This project is part of a broader effort to modernize an existing coal-fired power plant. The addition of a 645 MW 1x1 GE Power Island is designed to lower carbon emissions while delivering more efficient energy to surrounding communities.

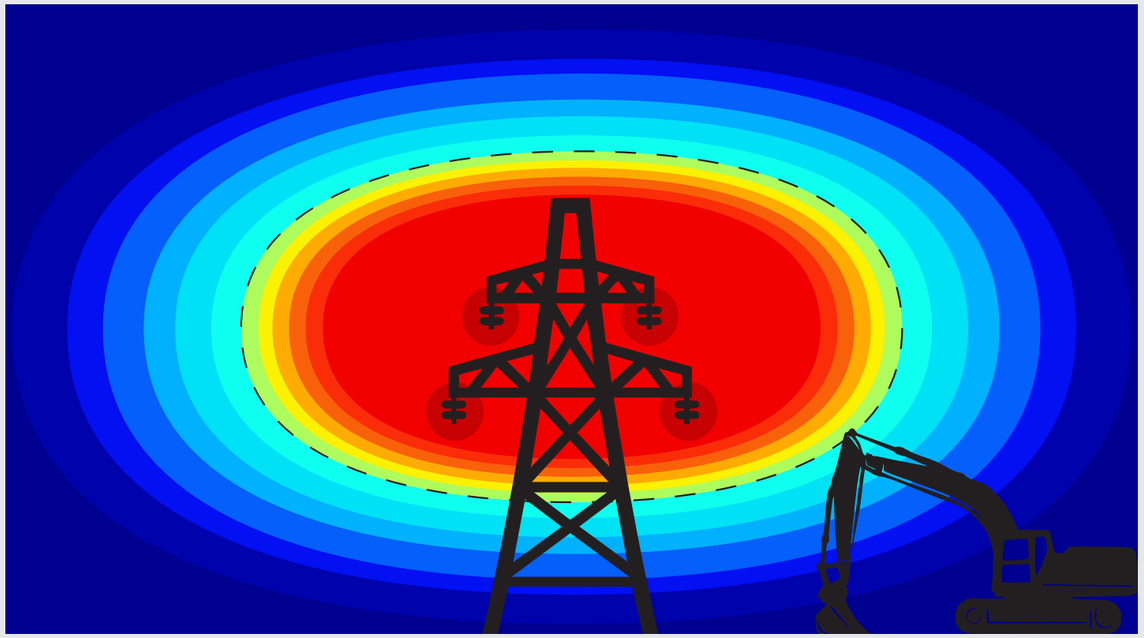
Given that powerlines run through the site, safety becomes even more important and overhead proximity sensors are helpful in this challenging environment.

"An overhead powerline creates an energized field around it, which sets off an electromagnetic signal," said Blake Hall, machine control specialist. "We use sensors on machines to detect this field. It's similar to using an electrical tester to check if an outlet is working, but on a much larger scale."

Once these sensors detect electromagnetic fields from nearby powerlines, if the equipment gets too close, they trigger a response, which can include warning signals, equipment retraction or halting operation. This feature helps operators maintain safe distances, even in locations where powerlines of varying voltages are present.

E-field detection

Proximity alarms detect electric fields (e-fields) around AC power lines, with field strength weakening as distance increases.



SEAMLESS JOBSITE INTEGRATION

Kiewit is prioritizing the seamless integration of these safety technologies, to make sure they enhance safety without complicating daily operations. Operators use an in-cab display to monitor the equipment's proximity to hazards, with customizable alerts if safety boundaries are breached. This interface helps operators focus on their work, while the technology acts as a safeguard to prevent accidents.

"Our focus is on providing solutions that don't create additional tasks for everyone. No one wants to adopt technology that adds more to their plate," said Daenan Fairburn, equipment technology director. "The right solutions are those that do the job, intervene when necessary and provide management and supervisors with the tools they need — this is how we know we've selected the right approach."

DEVELOPMENTAL PARTNERSHIPS

Proximity sensors are relatively new technology and Kiewit's collaboration with CAT has been key to incorporating this tool into operations. The company's input, based on real-world jobsite experiences, has contributed to improvements that address diverse operational challenges and helps keep the technologies user-friendly.

"We provide the voice of the customer. CAT takes that information and uses it to drive their strategic initiatives," Fairburn said. "They ask for pain points, and we give them our experience to help improve these tools."

This collaboration between contractor and manufacturer has led to refinements, including adjustments for different powerline voltages, ensuring the sensors work effectively under a wide range of conditions.

WHAT'S NEXT

Looking ahead, Kiewit is exploring advanced 3D systems capable of detecting powerlines, underground utilities and other hazards. Unlike current 2D systems, which require operators to manually set limits based on their surroundings, these next-generation technologies aim to provide fully integrated solutions that anticipate and mitigate risks in real time. Kiewit has already demoed 3D equipment that holds great potential. By embracing these innovations, Kiewit continues to set new benchmarks in safety, equipping its teams with tools that build confidence and ensure a safe working environment. **K**

> "The right solutions are those that do the job, intervene when necessary and provide management and supervisors with the tools they need — this is how we know we've selected the right approach."
>
> **DAENAN FAIRBURN**
> Equipment Technology Director

AN EYE IN THE SKY

Drones have long been a presence on Kiewit jobsites, taking aerial photos and videos. But it's more recently that they're playing a part in keeping crews safe.

On the Southeast Connector Project for the Texas Department of Transportation (TxDOT), Kiewit is using drone footage to observe employee behaviors, how they interact with equipment on the job and overall operational efficiency.

Located between Fort Worth and Arlington, Texas, the Southeast Connector is a design-build project performed by a joint venture with Kiewit Infrastructure South Co. and Austin Bridge & Road, aimed at rebuilding and widening crucial roadways. The project encompasses 16 miles of I-20, I-820 and US 287, as well as the reconstruction of three major interchanges. At peak construction, the project will involve 220 staff members and 800 craft workers, including subcontractors.

REVIEWING THE DATA

Kiewit's drone pilots, licensed by the Federal Aviation Administration (FAA), fly drones approximately 100 feet above the jobsite, capturing live video and generating thousands of still images per minute.

Project Safety Director John Cloutier reviews the images and takes notes. Other members of the team, including the general superintendents and field superintendents, then review a summary with the crew.

Cloutier likens it to a coach sharing the previous week's game footage with players.

"We watch it together and the superintendent goes out with the crew and walks through the screenshot photos, saying, 'This is a good example of spotting around the power line. This is an example of how we don't want to do that, and here's what we need to do differently,'" he said.

A REAL-TIME PERSPECTIVE

The use of drones provides a unique vantage point, allowing the team to assess safety practices and construction progress from above. According to TxDOT Project Manager Prapti Sharma, the ability to review real-time data has been invaluable.

"The real-time data has helped us verify the progress of the project as well as have a bird's-eye view of the project," she said. "This also allows the TxDOT team to show the progress of the project to the district office as well as the project partners."

It's important to the Kiewit team that the drone perspective offers a look at the entire operation and helps identify where to improve safety, Cloutier said.

"We really look for two big things," he said. "First, where our people are standing and walking, and whether there is something we're missing in how they interact with equipment and trucks moving through the site. Second, how well is public traffic separated from our operations? Do we have the right lane closures in place? Do we have the right protection or teammates in place to protect our people the best we can from being struck by a third-party vehicle?"

CREATING JOBSITE SOLUTIONS

Giving crews a buffer between them and road traffic is crucial. Drone footage has been instrumental in giving the team a unique view of where people are standing in relationship to the traffic, said Will White, project director.

"It allows us to change our lane closures to give the guys on the ground more room so that they don't have to be directly adjacent to the traffic," he said. "When you're standing on the ground looking at it, you see that, but you don't get the perspective that 'Hey, traffic's whipping by at 35 or 50 miles an hour and this guy is literally five feet away from the car when he's in this position.'"

Sometimes, the solution is as simple as giving crews more space. Where crews were pouring concrete, the team pushed out the boundaries of the closure and set a traffic control truck with an arrow on the back to protect crews, as well as a crash cushion to protect the driver.

In another instance, drone footage revealed where safety protocols could be improved to keep equipment a safe distance from the crew and from traffic.

As crews were building a temporary 30-foot-tall wire-reinforced wall, they used compactors to tamp down material. Eventually, the operation placed workers directly above live traffic.

"When we flew this operation, the one thing we noticed was that our barricades were too far out," Cloutier said. "When the trucks had to turn around, they were getting within the barricade limit, which we don't want because we have people in there. But the trucks need space to turn around and workers need to be in there, too."

The team relocated the work and moved the barricades, still allowing the trucks enough room to turn around and crews enough room to do their work but also providing a safe distance between them.

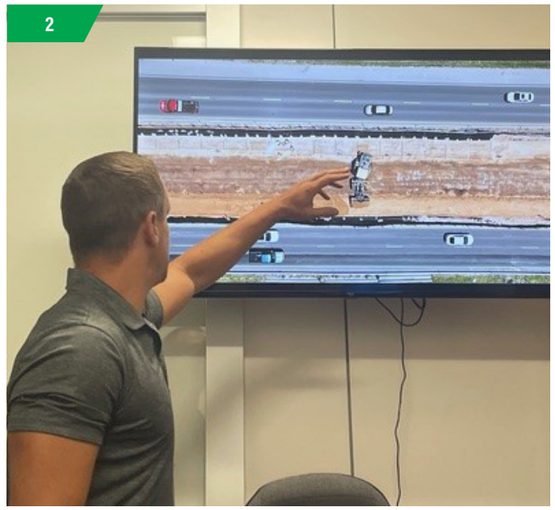
"We probably wouldn't have known that without looking at the operation from up above via the drone process," said Cloutier.

For project owner TxDOT, using drones is one more way Kiewit puts safety first.

"Safety is our priority, and we appreciate Kiewit putting safety as their priority," Sharma said. "The continued use of drones for monitoring the work activity and utilizing it for training as well as improving the work plan shows their dedication to safety of the workers and the public."

Kiewit has expanded its use of drone technology across several other projects and plans to continue in 2025. **K**

The drone's 100-foot bird's-eye view of the project provides an ideal vantage point for spotting potential safety issues and tracking project progress..



1. A drone operator controls the aircraft from the ground, capturing video and generating thousands of still images per minute. 2. Superintendents review footage and images with crews, allowing for real-time corrections and adjustments that help save lives.

BEHIND THE WHEEL, AHEAD OF THE CURVE

New innovations are making equipment operation safer than ever, benefiting both operators and workers on the job.

Recent improvements in technology are taking equipment safety to a new level with seatbelt usage, personnel detection and collision mitigation systems.

Kiewit has been working with original equipment manufacturers (OEMs) for many years, partnering with them to help design and implement improved equipment safety features and tools, said Daenan Fairburn, equipment technology director.

"We're at the point now where new technology outperforms similar legacy solutions, and at a much lower cost," he said. "These tools provide immediate feedback and better data than we've ever had access to before. That gives projects the opportunity to identify and solve equipment safety challenges before an incident occurs."

Steve Curry, vice president of Kiewit Equipment Services, emphasized the importance of these strong collaborative relationships with OEMs to make innovations happen.

"It's our responsibility to push the OEMs that we do business with to innovate faster around equipment safety technology and make it available to us quicker," he said. "We take this responsibility very seriously because equipment incidents are avoidable, and we owe it to our employees to put the safest equipment possible on our projects."

The goal is to mitigate risks involved in operating and working around equipment, eliminating serious injuries and fatalities, said Curry, adding that some of these technologies are the last line of defense and save lives.

BUCKLE UP FOR SAFETY

Kiewit didn't wait on manufacturers for a new seatbelt reminder system. The company has focused significant efforts retrofitting existing machines with features it believes will improve seatbelt usage and save lives. The system includes:

- A light and audible alarm inside the cab to remind the operator to buckle up **(A)**
- Bright orange seatbelts that are clearly visible, making it easier for those on the ground to spot when a seatbelt isn't being used **(A)**
- A purple strobe light on top of each cab that alerts those on the ground when a seatbelt isn't fastened **(B)**

Senior Equipment Manager Jim Claypool said the company has also been working with OEMs to integrate seatbelt usage into telematics on the machines. Telematics can track if a machine is running without the seatbelt fastened. It can be set up with real-time notifications or presented in a report.

The system can send an alert (text or email) to a supervisor, notifying them that a machine is running without the seatbelt fastened. In the notification is a link that tells them which machine it is and where it is. Clicking on another link will provide GPS coordinates and directions on how to get there.

Why would Kiewit invest so much time and effort into the seatbelt system? Claypool said it's because seatbelt usage has been proven to save lives. Too often in the construction industry, a worker is crushed by a machine after being thrown out or trying to jump out in a rollover situation.

"That's about as serious as it gets when something like that happens," said Claypool. "And so many serious injuries and deaths can be prevented by just using a seatbelt."

Equipment operators need to understand that the rollover protection structure (ROPS) installed on most machines is there to protect them, but it can't help if they're not secured in the cab, he said.

Kiewit has focused the seatbelt initiative on machines that pose the greatest risk, including bulldozers, loaders, skid steers, motor graders, compactors and haul trucks.

At the end of 2024, the company has completed installation of the seatbelt reminder system on 1,860 machines identified for the upgrade.

IDENTIFYING PEOPLE IN THE WAY

Another major equipment upgrade is the installation of personnel detection technology on telehandlers, compact track loaders, skid steer loaders and wheel loaders. **(C)**

"The goal is to avoid incidents where we could potentially back over an employee with one of those four types of equipment," said Curry.

The camera-based system will alert the operator that a person has entered a danger zone. The system sounds an audible alarm, and each cab is equipped with a monitor that shows where the individual is, left, right or behind the machine.

Inside the cab, the operator has a monitor that displays a rectangular box around a person detected in a danger zone. **(D)** Marcus Bray, regional equipment manager, said the box is either green, yellow or red, depending on how close the person is. There is also an audible alarm — a beep when someone is in a yellow zone and a solid, louder alarm when someone is in a red zone.

Bray said Kiewit tested multiple systems before selecting two versions: one for telehandlers and wheel loaders, and another for compact track loaders and skid steer loaders.

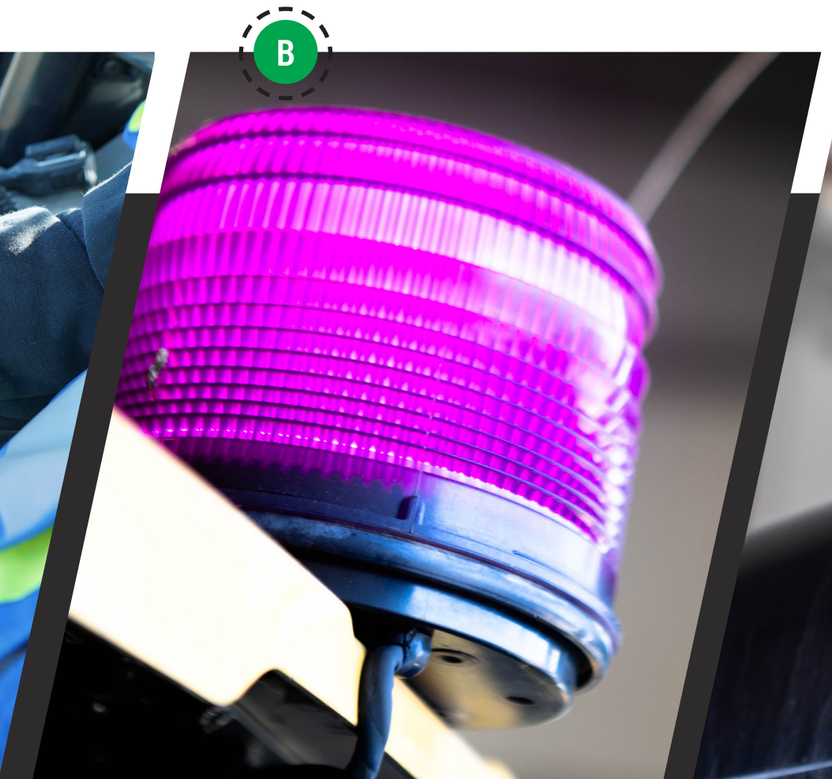
Kiewit began installing the technology late third quarter of 2024 in over 1,000 company-owned machines and plans to have the remaining features installed in early 2025. Kiewit collects data in real-time from each of the machines. This data will enable the projects to identify high-risk work areas and make changes in real time.

During testing, Bray said a telehandler equipped with the technology was detecting several hundred people throughout one shift. Within 30 minutes, the management team was able to identify the issue, reorganize the work area and reduce the detections to less than 10.

"It was easy to see that with just a little bit of data and a minimal amount of effort, we can become more effective in setting up our equipment operations and helping ensure that we reduce those risks," Bray said.

Kiewit equipment will also be fitted with external alarms that alert an individual on the ground that they are too close to a machine. The goal of that feature is to change behaviors on the ground and take some of the burden off the operator, according to Bray.

"Operators who have tested or used the new technology love it," Bray said. "It's another level of protection to prevent them from hurting someone else, which is especially important with higher risk equipment like skid steers, telehandlers and loaders."



COLLISION MITIGATION

Collision warning systems depend on the equipment operator or the person on the ground to act to prevent an injury. The operator must stop the machine or the person needs to get out of the way.

Two years from now, Kiewit will be able to purchase machines from its main construction equipment OEMs that have collision mitigation installed, said Curry. This new technology will be able to identify a person or object in the danger zone and automatically stop the machine without operator interaction.

"It won't be a warning system. It will truly be a mitigation system," Curry said. "So that's our evolution. We're starting with warning systems both in the cab and external, and moving toward mitigation over the next two years."

Bray said the results of testing the collision mitigation technology on a front-end loader were impressive. With a full load in the bucket, the operator backed up as fast as he could go. When the system detected some trash cans in the way, it engaged the brakes and stopped the machine. In two hours of testing in a variety of configurations, the machine never knocked the trash cans over.

Because of the risk involved with incorporating the technology into a machine's control system, Kiewit will wait on OEMs to deliver it in new equipment but continue to push them to do so as quickly as possible.

"I think it's great that the company is willing to invest in this kind of technology," said Project Safety Director John Cloutier. "The willingness to use what's out there, provide feedback to manufacturers and grow with it as it gets better, says a lot about the company's commitment to safety." **K**

"It was easy to see that with just a little bit of data and a minimal amount of effort, we can become more effective in setting up our equipment operations and helping ensure that we reduce those risks."

MARCUS BRAY
Regional Equipment Manager