

12 Types of Technology that Can Make Jobsites Safer

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Construction Safety Week, celebrated a couple months ago, is an annual opportunity for people, companies, and even competitors to work together and celebrate the incredibly hard work done by people in our industry who make safety the foundation of everything they do and demonstrate their continued commitment to building a stronger, safer industry.

Innovating construction safety involves implementing new ideas, technologies, processes, and practices to reduce risks, prevent accidents, and promote a culture of safety. At JT Magen & Co., we already implement many steps to innovate our construction safety, including everything from risk assessment and management to training and education.

We also embrace technologies such as wearable devices, drones, and artificial intelligence-powered analytics to improve safety monitoring, hazard detection, and incident prevention.

Innovations such as these have the potential to significantly improve workplace safety in the construction industry by providing better risk assessment, enhanced communication, and real-time monitoring of workers and environments. By leveraging these emerging technologies, construction companies can create safer working environments, reduce accidents and injuries, and improve overall productivity and efficiency in the industry.

Here are some examples of technologies we strive to develop and improve, and how these technologies can contribute:



Wearables: Devices such as smart helmets, vests, and wristbands equipped with sensors can monitor vital signs, detect hazardous substances, and provide real-time alerts in case of accidents or dangerous conditions. These devices can also track workers' movements to prevent collisions and ensure they stay within safe zones.

Virtual reality/augmented reality: VR and AR platforms can be used for immersive safety training simulations, allowing workers to practice handling hazardous situations in a controlled environment. AR can also provide onsite guidance and visual overlays of safety protocols, equipment instructions, and hazard warnings, improving situational awareness.

Drones: Unmanned aerial vehicles equipped with cameras and sensors can conduct surveys of construction sites to identify potential hazards, monitor progress, and inspect hard-to-reach areas without risking worker safety. They can also be used for inventory management and security monitoring.

Artificial intelligence: AI-powered algorithms can analyze vast amounts of data from sensors, cameras, and other sources to predict safety incidents such as falls or equipment malfunctions before they occur. AI can also optimize resource allocation, schedule maintenance tasks, and automate safety inspections to minimize risks.

BIM: This type of software enables architects, engineers, and construction teams to create digital models of buildings and infrastructure projects. These models can simulate construction processes, identify safety hazards, and plan logistics more efficiently, reducing the likelihood of accidents during the construction phase. While already in use, the expansion of this technology can only improve our safety profile.

Robotics: Robotic systems can perform repetitive or dangerous tasks such as heavy lifting, demolition, and welding with precision and consistency, minimizing the need for human intervention in hazardous environments. Collaborative robots, or cobots, can work alongside human workers, enhancing productivity and safety.

3D printing/additive manufacturing: 3D printing allows for the fabrication of complex structures and components with high precision. It can be used to create custom safety equipment, tools, and building materials tailored to specific project requirements, enhancing worker safety and efficiency.


Predictive analytics: By applying predictive analytics to historical safety data, construction companies can identify trends, patterns, and risk factors associated with workplace accidents and near misses. This information can be used to develop proactive safety measures and targeted interventions to prevent future incidents.

Autonomous vehicles and equipment: AVs and robotic construction equipment can perform tasks such as material transport, excavation, and site preparation with minimal human intervention. These technologies reduce the risk of accidents caused by human error and improve overall construction site safety.

Remote monitoring and telepresence: These innovations enable supervisors and safety managers to oversee construction activities and provide real-time guidance to workers from a centralized location. This capability enhances communication, facilitates quick decision-making, and ensures adherence to safety protocols.

Environmental monitoring and control: These advanced systems can measure air quality, noise levels, temperature, humidity, and other factors that affect worker health and safety. By continuously monitoring and controlling these environmental parameters, construction companies can create safer and more comfortable work environments.

Exoskeletons: Wearable robotic devices augment human strength and endurance can help reduce the risk of musculoskeletal injuries by providing support and assistance to workers when performing physically demanding tasks such as lifting heavy objects or working in awkward positions.

Safety is priority number 1 for our industry, and that it's our responsibility to follow, expand, and enhance safety procedures every day. 



About the Author

Lena Kenny is a safety manager at New York City-based contractor [JT Magen & Co.](#) Lena has extensive experience in the health and safety field as she previously worked as a health and safety officer for the National Virus Reference Laboratory, as well as a senior research technician for NYU Langone Health.

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