

## Camera Solution for Operating in the Blind

### What's the Risk?

Operating machinery “in the blind” typically refers to scenarios where operators cannot directly see the load or its placement due to limited visibility, distance or other obstructions. Spotters and signal persons play a critical role in relaying instructions to the operator, however, the ability to safely control the load or react to changing circumstances is often delayed, contributing to serious incident and fatality (SIF) risks such as:

- Workers being struck by or caught between materials
- Pinch point injuries
- Crane collapse or tipping
- Falling materials
- Damage to nearby structures or equipment

To mitigate these risks and enhance the safety of nearby workers and pedestrians, [Garney Construction](#) began piloting [HoistCam™](#), a high-definition, rugged wireless camera which attaches to the block of a crane (or other metal components) via high-strength magnets. The cameras allow operators to view real-time video footage of the worksite, providing them with direct visibility of the load, the surrounding area and potential blind spots. The technology was tested on a tower crane (140' tall x 250' radius) at a Virginia-based wastewater treatment plant.

### Impacts

During the pilot, Garney relied primarily on operator feedback and performance as the initial measure of success. According to this feedback, the HoistCam system enhanced both the safety and efficiency of crane operations on the worksite. Through increased visibility of the worksite and the load, the operator reported a greater awareness of the surrounding area, allowing for a safer and better-informed lifting process. Consequently, this also helped reduce the mental load needed to safely hoist and place materials, contributing to increased confidence and less stress for the operator. The system also had tangible benefits on site productivity, increasing the speed and accuracy of material placement.



## Lessons Learned

A representative from Garney Construction noted several lessons learned during the pilot of the HoistCam system:

- **Be realistic about the applications of technology**

Employers interested in trialing or implementing safety technologies should maintain a pragmatic approach, recognizing that a solution may not be applicable to every machine, scenario or hazard. Risk assessments, site evaluations and gathering employee feedback are essential in evaluating the compatibility of technologies on the worksite and their ability to control for the highest-risk exposures. Point solutions, those controlling for specific hazards, can be an effective way to mitigate risks while supplementing other existing controls.

- **Opt for a human-centric pilot**

Garney Construction advocates for the ongoing involvement of workers before and during the pilot process. Before investing in technology solutions, employers should gather feedback to understand how work is currently being done and what changes can be made to improve job safety. Worker feedback can also be invaluable for assessing the success of a technology. For example, Garney relied heavily on operator feedback while testing the HoistCam system, with the objective to determine if the technology made the job safer and easier.

- **Balance your initial investment with technology needs**

A potential barrier to adopting technology is the initial financial investment needed to successfully implement and scale solutions. However, Garney notes it is important to balance these considerations with the necessary specifications and requirements of the technology itself. For instance, though Garney

explored the potential of other, more inexpensive camera solutions, they found these systems did not offer the signal strength or connectivity necessary to operate on the worksite. Consider the minimum requirements of technologies (e.g., cost, connectivity, ruggedness) and balance these requirements with initial investments to ensure long-term success and reliability.

At the time of this case study, Garney's internal field technology team has recommended the technology for immediate implementation on projects where cranes are operating in the blind. They also identified additional use cases for the technology, such as excavator operations, to reduce risk in other areas of the worksite.



## Garney Construction

Garney is a national leader in water and wastewater construction. Since 1961, it has focused on building water and wastewater systems of all sizes for municipal, federal, industrial and private clients. Garney specializes in collaborative project delivery solutions, including CMAR and design-build, for its clients across the United States.



## HoistCam™

Netarus, LLC manufactures and sells industrial-grade video monitoring solutions – HoistCam™ in particular – which improve employee productivity and workplace safety with material handling equipment in the construction, industrial, marine and transportation industries. HoistCam, a rapidly deployable wireless camera system, places the eyes of the material handling operator, such as on a crane, anywhere on the job.

***The National Safety Council would like to gratefully acknowledge the partnership and support of the [NCCCO Foundation](#) for this work. These case studies are for educational purposes only and do not constitute an endorsement of any particular technology, vendor or employer. The intention is to provide practical insights into the implementation and applications of safety technology in the crane industry.***