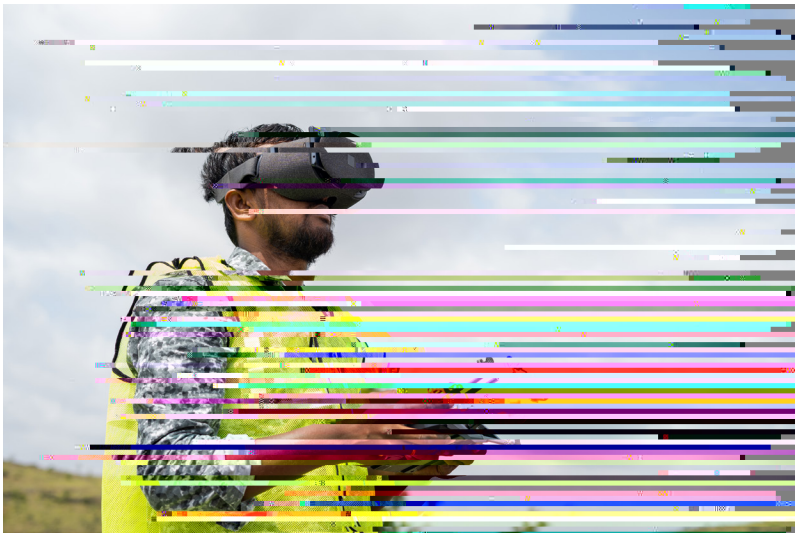
Can VR Replace Workers in Hazardous Construction Scenarios?

Written by: Evelyn Long, Founder, Editor-in-Chief, Renovated.com

Virtual reality (VR) technology has signi fcantly progressed in various industries because it transforms how people perform tasks and deliver experiences. By creating immersive, computer-generated environments, VR allows users to interact with digital worlds as if they were real. This technology has practical applications in healthcare, education, construction, and beyond.

In construction, the ability to address hazardous job duties is particularly crucial. Many tasks involve signi fcant risks, such as working at great heights, handling dangerous materials, or operating heavy machinery. Utilizing VR to simulate these scenariorir é



CURRENT STATE OF VR IN CONSTRUCTION

VR advancements hav ä ƥ ɣ ʊ˳ ʊ ᵐ ʊ ǀ ᵀ M ʊ ɹ M ƥ M ᵀ ɤ ƥ ᴰ ǀ ɕ Mvirtual environment. This capability improves ef fciency and enables prompt problem-solving and maintenance, ensuring construction projects and the teams handling them are safe and seamless.

HAZARDOUS JOB DUTIES

Construction sites are inherently hazardous, with several job duties posing signi fcant risks, speci fcally tasks involving

working at heights — such as on scaffolding or ladders. Handling heavy machinery, exposure to toxic materials and working in confned spaces also rank high in risk.

According to data from 2020, slips and falls resulted in over 350 fatalities and were the leading cause of construction-related deaths. These incidents highlight the critical need for adequate safety measures to protect workers from harm.

Current safety measures include using personal protective equipment, like helmets, harnesses, and non-slip footwear; safety training programs; and strict adherence to OSHA regulations. However, these measures have limitations: PPE can sometimes be insuffcient, mainly if used incorrectly or inconsistently; and safety training, while essential, may only partially prepare workers for real-life scenarios.

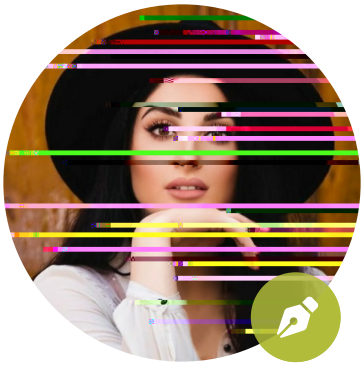
Moreover, onsite inspections and manual oversight can miss potential hazards, leading to accidents. These limitations underscore the necessity for more advanced solutions such as VR, which can provide comprehensive training and hazard simulations to prepare workers for the risks they face.

VR-ASSISTED HAZARDOUS DUTIES

VR technology can signifcantly enhance safety training in construction by simulating hazardous environments. By creating realistic, immersive scenarios, VR allows staff to experience and navigate dangerous situations without the associated risks. For example, VR can replicate working at heights, operating heavy machinery, or handling hazardous

to workforce management, ensuring employees are retrained and upskilled to adapt to new technological demands. It's crucial to provide equitable access to VR technology across all levels of construction staff to foster an inclusive environment where everyone benefits from technological advancements.

The future outlook of VR in hazardous construction scenarios is promising, with advancements enhancing safety, efficiency, and training effectiveness. Contractors must explore and responsibly integrate VR technologies to protect their workforce and improve project outcomes.



About the Author

Evelyn Long is the founder and editor-in-chief of Renovated with over five years of experience researching and writing about home living. Her passion project is writing about the real estate market and home staging.

About the Article