

## Simulation Training Reduces Both Costs and Fatalities

*A Liebherr simulator*



Industry statistics underscore the connection between increased training and reduced fatalities on construction sites. The question is how to provide training in a cost-effective way. Now simulation training programs offer a solution with many benefits. Simon Hogg, application consultant at [TenStar Simulation](#), a manufacturer of training simulators for the construction industry, explains why, “Learning to operate a crane for the first time can be a daunting

prospect, as well as costly exercise for the training provider. Through simulator training students learn terminology, control familiarization, hand-eye co-ordination skills and they can return to the simulators and practice certain areas they may feel weaker in. The most significant benefit by far is that mistakes can be made on a simulator, which is not an option on an actual site.”

While simulators are not a replacement for training on an actual machine, they can be used to train a whole team, not just an individual, with minimal costs and risks to health and safety.

Sebastien Loze, director of marketing and partner sales at CM Labs, manufacturer of [Vortex Simulators](#), says, “Crane simulator training is not just about training the operator, it is [about making it] possible to teach the whole lift crew. Teamwork cannot be taught in the classroom but, with a simulated training environment that incorporates multi-role-playing [including lift planning, lifting and reviewing], the operator, signaller and rigger can all be trained together and take these skills out to the real job.”

### Other Benefits of Simulation Training

- For the cost of one 28-ton hydraulic excavator, you can have up to 20 virtual machines by using Tenstar's simulator program. This makes the return on investment of a simulator substantially higher than that of a real machine.
- Electricity cost of a simulator is only a fraction of the fuel consumption of a real machine. In addition, machine wear and tear can be decreased significantly if operators

are allowed to build up skill and practice in a simulator environment before practicing in a real machine. All keeping operating costs down.

- Simulation can include harsh environmental conditions, such as snowfall, heavy winds, torrential rain and high waves. This allows both experienced operators and trainees to practice operating in challenging conditions and, thanks to the virtual environment, damage to crane equipment and injuries to personnel are eliminated.”
- Training can apply not only to new employees but also experienced operators who need familiarization with newer equipment.
- Simulators can include real seats and controls, authentic worksites and sounds [including weather], and a head-tracking system for precise points of view. A 3-degree-of-freedom motion platform replicates the motion and vibration experienced by the operator while travelling and lifting.



- An instructor’s console allows trainers to introduce unexpected events such as mechanical and hydraulic problems and sling breaks.
- All progress is monitored and training sessions collect information related to the number of collisions and spills, loading violations, time spent in rough handling of crane, objects moved, and more.
- Operators can practice standard tests such as the National Commission for the Certification of Operators [NCCCO] tests using different types and sizes of cranes or train and prepare for NCCA-accredited Crane Institute Certification (CIC) exams.

TenStar Simulation includes tower crane, truck mounted crane and timber truck crane simulators. The tower crane simulator has 11 exercises ranging from basic lifting to pouring concrete form a fifth floor. The truck mounted crane simulator has a further 24 exercises. Throughout these exercises students are notified with visual warnings as they progress through the tasks. This is accompanied by a report to assess the students’ progress and performance and to identify any problem areas which need more training.