all-around-view monitor on excavators. This camera system ZYUri fYg'U" *\$! XY[fYY' Y'X'cZj]Yk zWbhf]Vi h]b['rc'k cf_g]hY' safety. Cameras are mounted on the front of the excavator cab, on each side of the machine, and on the rear. One standout feature of the camera system is an additional alert system, which warns the operator of the presence of people or objects around them. The all-around camera system gives operators an extra sense of security as they go about their work, increasing productivity and working time.

Most manufacturers continue to offer a rearview camera as a standard machine feature. Some companies also offer a side view camera for enhanced visibility to the side of the excavator. These views can be seen side by side on some LCD screens in the cab.

2. TRANSPARENT BUCKETS

Another new technology is the Doosan Transparent Bucket, available for select wheel loaders. This technology utilizes multiple cameras to stitch together a view in the front of the wheel loader, rendering the bucket transparent.

An operator can see that it's there but could also see beyond it. This allows for greater control of the bucket and enhanced jobsite safety. The transparent bucket allows operators to:

» See hidden objects — Operators can see large rocks, construction materials, obstacles, and even people in front of the machine — anything that would otherwise be obstructed from view by the bucket.

- » Minimize blind areas The multiple-camera system helps minimize blind spots that occur when the wheel loader bucket is raised. Operators can see what's ahead of them from the in-cab monitor.
- » Operate more comfortably—The ability to "see through" h\Y'k\YY```cUXYf'Vi \WYh'U``ck g'cdYfUrcfg'rc YZ VJYbh'mX][' into and precisely place material where it needs to go. This innovative technology helps maximize productivity.

3. GRADE CONTROL SYSTEMS

5 byk 'h/Wbc'c[mgdYW] Who 'VfUk 'Yf'Yl Wj Uhofg']g'h\Y' grade control system. This option is available in a 2D or 3D Wb [i fUh]cb" +bghYUX cZghcdd]b['U'a UW]bY'ho a YUgi fY' the trench depth, a grade control system allows a machine to operate at a continuous pace. An excavator with a grade control system can read jobsite data that is mapped out by a drone or a manual survey. This system allows an operator to work quicker and with a better feel of the jobsite and the trench depth.

It's understandable if not every contractor wants to take the time or money to explore new heavy equipment technology. However, if you do, make sure to contact your local dealership to explore what's available for your machines and what upgrades may be the easiest to make without too much investment. You may be surprised at how these new technologies can increase not only operator safety, but overall dfcXi Wij]hmUbX'dfc hk]h\ci ha i W\Qg\Y"



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5bmj]Yk g'UbX'cd]b]cbg'Yl dfYggYX']b'h\]g'Ufhj\WY'a Umcf'a Umbch'fY YWh'h\Y' views and opinions of the Construction Management Association of America (CMAA). By publishing this piece, CMAA is not expressing endorsement of the individual, the article, or their association, organization, or company.