

# EASE OF USE TECHNOLOGIES FOR ANY JOBSITE



Enhance your productivity while  
reducing operating costs  
with Cat® Ease of Use technologies





# TAKE CONTROL OF YOUR FUTURE SUCCESS

with Cat Ease of Use Technologies.

Our range of cutting-edge solutions helps our customers track, monitor, automate and manage their assets – from a single machine to an entire fleet – so that they can work faster, better, and smarter while paying back.

Our ease of use technology is designed for our range of specific machine models, is factory integrated and supported by our wide network of Cat dealers, so you can focus on what is most important: your business.

## Reduce your operating costs

By improving accuracy to deliver 30-50% production increases and less operator intervention, investing in our technologies will have you increasing your bottom line in no time. Fewer project hours mean more time and opportunity to bid for additional work, which in turn can contribute to company growth and expansion.

## It's easy to use.

Whether you're new to the job or an experienced operator, Cat Ease of Use technologies are intuitive, user-friendly and designed with our customers in mind. They will help you remove the guesswork, rework and hard work with our precision tools, display monitors and easy-to-understand data.

## It's safe.

Our ease of use technologies are designed to prioritize operator safety and enhance job site efficiency by reducing fatigue – allowing you to operate equipment smoothly and efficiently. With less need for fuel, maintenance, and resources, our solutions ensure you meet all the necessary safety regulations and job requirements, enabling you to focus on the task at hand without compromising on operator well-being.



## TECHNOLOGY FOR ANY JOB.

We know that every jobsite poses its own unique challenges. That's why our Ease of Use technologies and services can be combined and customized in the most appropriate ways for you and your business. Our systems gather and analyze data from your existing equipment. From there, you can add online services and web apps that let you monitor your operations from anywhere. What's more, Cat Ease of Use technologies work across other machine brands to keep your mixed fleet working together efficiently.

**“ CAT HAS BEEN OUR  
PRIMARY CHOICE OF  
EQUIPMENT SINCE 1940.  
WITH THEIR TECHNOLOGY  
SOLUTIONS, WE MAKE  
SURE NO ONE EVER  
OUTWORKS US!”  
VEIT & COMPANY INC**



## 2D GRADE

The Cat **Grade 2D system** enables semi-automatic digging and grading with precision using in-built sensors and real-time in-cab display.

### What are the benefits?

- Reach the target grade quicker and save costs associated with wasted time, fuel, and materials.
- Easily adjust target depths and slopes, with the joystick command, touchscreen interface, or jog dials. Start digging and simply check grade from inside the cab.
- Burn less fuel, eliminate waste, and increase productivity.

### Which applications?

- Sewer water, utilities
- Landscaping
- Commercial and residential work

## 3D GRADE

The Cat **Grade 3D system** leverages advanced GNSS technology and RTK positioning guidance to simplify the grading process of complex designs, displaying real-time cut/fill values in the cab on touch panel, allowing operator to work to the reference design or grade rapidly and accurately, often found on large infrastructure and commercial projects.

### What are the benefits?

- Maximize productivity and job site efficiency.
- Tracks machine and bucket or blade edge's exact location on the job site.
- Maintains accuracy across large job sites and multiple machines with in-field design plan functionality and control.
- Better blade control
- Steer assist or automatic horizontal steering
- Get to higher quality surface finish, faster!

### Which applications?

- Road construction work
- Dredging

## PAYLOAD

The Cat **Payload technology** provides on-the-go weighing to help operators hit exact targets every time and avoid overloading, underloading, or misloading materials.

### What are the benefits?

- Load trucks to optimum payload.
- Track productivity from the cab with quick access to truck target weights without any guesswork.
- Improve loading consistency for operators at all experience levels.
- Enhance operator effectiveness, reduce fuel costs and maximize productivity on the jobsite with accurate, precise loading.

### Which applications?

- Quarries

## E-FENCE

The Cat **2D E-fence** is an excavator safety feature that keeps an excavator's front linkage within a predefined work area to avoid hazards on the jobsite.

### What are the benefits?

- Keep you and your co-workers out of harm's way.
- Help avoid repairs, downtime, and costly jobsite fines.
- Boost operator comfort by reducing stress and fatigue.
- Less ground personnel.

### Which applications?

- Urban & highway

# ROAD CONSTRUCTION AND MAINTENANCE



Grading a site. Digging a foundation. Laying the asphalt. When profit margins and budget targets are on the line, Cat Ease of Use technologies deliver the speed, efficiency and spot-on accuracy you need to deliver a better-quality road ready in less time.

Gone are the days of manual grading, hubs, and stringlines. Complete your layout in half the time with our advanced automation systems designed to help operators at any skill level work confidently and safely – without any guesswork.

Carry out your earthmoving operations with the utmost precision. From grading and paving to spot-on depth and compaction control, Cat Ease of Use technologies are guaranteed to dramatically improve your productivity and efficiency.

## CAT GRADE

Road construction and maintenance demands the precision and speed you get from Cat Grade grading technologies. Combining automated machine control with advanced guidance, Cat Grade helps operators hit grading targets right on the money, faster and in fewer passes, resulting in up to 50% better grading productivity compared with traditional methods.

The *Cat Grade 2D* system enables semi-automatic digging with precision using in-built sensors and real-time in-cab display.

The *Cat Grade with Assist* system automates boom and forearm movements and uses sensors and operator-defined depth and slope parameters to achieve precision in less time.

### BENEFITS

- + **Reduce costs** by saving time, labor, and fuel.
- + **Improve accuracy** with precision control and guidance.
- + **Enhance safety** with fewer site personnel needed on the ground.

The *Cat Grade with Cross Slope* system automates the cross slope of the blade allowing for greater accuracy and faster levelling. For every 0.5% deviation from the desired slope, the amount of material can be increased by 20%.

It helps operators of varied experience get to design plan up to 39% faster, while it requires up to 82% fewer operator inputs.

Integrated seamlessly into new Cat equipment, our *Cat Grade* technology provides optimum precision with complete ease of use. Select technologies are also available as add-ons, giving you the flexibility to customize and upgrade your existing equipment.

The *Cat® Grade 3D* system leverages advanced Global Navigation Satellite Systems (GNSS) technology and RTK positioning guidance to simplify the grading process of complex designed, often found on large infrastructure and commercial projects.

### ...For dozers

Improve your grading efficiency, accuracy, and productivity.

*Cat Grade 2D* with Slope Assist with blade cross slope and main fall for better surface quality.

*Cat Grade 3D* with automated blade control, guidance and GNSS control.

*Cat Steer Assist 3D* enables the dozer to follow a guidance line in a site design or Infield design under light or heavy loads. Steer Assist 3D helps make work easier for operators of varied skill levels.

### ...For motor graders

Achieve your desired levelling faster and more accurately.

*Cat® Grade 2D* with Cross Slope with automatic blade cross slope.

Mastless *Cat® Grade 3D* with automatic blade control.

### ...For excavators

Ensure cuts and fills are made to exact specifications.

*Cat® Grade 2D* with elevation and slope guidance.

*Cat® Grade 3D* with real-time satellite positioning guidance.

**“ WITH THE CAT GPS SYSTEM, I CAN CUSTOMIZE ALL MY DISPLAYS, I CAN CUSTOMIZE THE MODE OF OPERATION – IT TELLS YOU EVERYTHING YOU NEED TO KNOW. IT’S THE MOST OPERATOR-FRIENDLY EQUIPMENT I’VE EVER RUN.” - Veit & Company Inc**



# URBAN AND HIGHWAY

At Caterpillar, safety is engrained in everything we do. We know that urban work zones are often hazardous and demand stringent regulations. Workers are subjected to heavy equipment, fast moving vehicles and traffic, which too often create opportunity for unsafe conditions if not taken seriously. While getting the job done is important, safety must always be a top priority. From machine camera systems to personnel tracking devices, Cat Ease of Use technologies can help you keep equipment and personnel out of harm's way.

Today Cat Safety Technology includes a range of monitoring and tracking hardware and software systems that—along with in-depth service experience and expert consultation—can help you build and maintain a strong culture of safety throughout your organization.

## ... for excavators

### Lift Assist

Cat Lift Assist is an excavator safety feature that quickly calculates the actual load you are lifting and compares it to the rated load the excavator is capable of handling. Visual and audible warnings indicate whether you are within safe working range or if you need to take action to avoid tipping.

### E-fence Technology

Cat 2D E-fence is an excavator safety feature that keeps an excavator's front linkage within a predefined work area to avoid hazards on the jobsite. It uses data from position sensors to automatically stop motion when the front linkage reaches an operator's defined boundary. This safety feature can protect the excavator when operating throughout an entire working envelope (above, below, sides and front).

### BENEFITS

- + Keeps your excavator firmly grounded when lifting heavy loads.
- + Easily pick and place pipe, manholes, and trench boxes.
- + Less machine stress gives you more working hours with lower owning and operating costs.

### BENEFITS

- + Keeps you and your co-workers out of harm's way.
- + Helps avoid repairs, downtime, and costly jobsite fines.
- + Greater confidence and reduced stress while operating.





## RAILROAD

Cat's railway division, Progress Rail, have been helping customers build trains, tracks and railway infrastructure for over 100 years. Today they work hand-in-hand with various Cat departments and specialists, to ensure every project is completed as quickly, efficiently and safely as possible. Cat Ease of Use technologies are at the forefront of this work, helping our teams clear, construct and connect more effectively than ever.

...for track-type tractors, motor graders, excavators or scrapers.

### Cat Grade with 3D

Cat Grade with 3D adds real-time satellite positioning guidance for your complex projects. This system uses two GNSS receivers and a correctional data source to achieve Real Time Kinematic (RTK) positioning guidance in three-dimensional space. Full 3D helps operators maximize productivity and job site efficiency when working with the complex designs often found on large infrastructure and commercial site projects. Cat Grade with 3D delivers faster and more accurate Rough Grading, no matter how complex the design, as well as Finish Grading at tight tolerances for a 3D GNSS solution.

### BENEFITS

#### Rough grading

- + Onboard touch display compares position of blade to design elevation to cut or fill to grade
- + Cut/fill data drives valves for automatic blade control, or is shown in-cab as visual guidance for operators

#### Finish grading

- + Maintain tight tolerances for superior work
- + Finished grade materials can be placed more accurately and quickly, keeping material costs low and production high
- + More confidence in low cost and quick completion allows lower bids and increased chance of gaining business

### Lift Assist

Cat Lift Assist is an excavator safety feature that quickly calculates the actual load you are lifting and compares it to the rated load the excavator is capable of handling. Visual and auditory alerts tell you if you are within safe working range or need to take action to avoid tipping.

### BENEFITS

- + Keeps your excavator firmly grounded when lifting heavy loads
- + Easily pick and place pipe, manholes, and trench boxes
- + Less machine stress gives you more working hours with lower owning and operating costs

### E-fence Technology

Cat 2D E-fence is an excavator safety feature that keeps an excavator's front linkage within a predefined work area to avoid hazards on the job site. It uses data from position sensors to automatically stop motion when the front linkage reaches an operator's defined boundary. This safety feature can protect the excavator when operating throughout an entire working envelope (above, below, sides and front), as well as avoiding contact between the attachment and the cab.

### BENEFITS

- + Keeps workers out of harm's way
- + Less repairs, downtime, and jobsite fines
- + More confidence, less stress for operators

# RESIDENTIAL AND COMMERCIAL

Residential job sites typically involve the construction of homes, apartments, or other types of housing. Commercial job sites, on the other hand, involve the construction of buildings such as offices, retail stores, and warehouses. Construction activities at these sites may include excavation and site preparation, foundation work, electrical and plumbing work, and finishing work.

...for track-type tractors, motor graders, excavators or scrapers.

## 2D Grade

Cat 2D Grade is ideal for the kind of excavation work so common to residential and commercial projects, making the technology suitable for earthmoving contractors looking to improve their excavation productivity and profitability.

## BENEFITS

- + Sensors measure distance between body, boom, stick and bucket to guide operator to the desired depth and slope
- + Flexibility to upgrade to 3D Grade control
- + Keeps workers out of harm's way
- + Less repairs, downtime, and jobsite fines
- + More confidence, less stress for operators

... for excavators

## Cat Grade with 3D

Cat Grade with 3D adds real-time satellite positioning guidance for your complex projects. This system uses two GNSS receivers and a correctional data source to achieve Real Time Kinematic (RTK) positioning guidance in three-dimensional space. Full 3D helps operators maximize productivity and job site efficiency when working with the complex designs often found on large infrastructure and commercial site projects. Cat Grade with 3D delivers faster and more accurate Rough Grading, no matter how complex the design.

In addition, Cat Grade Assist for excavators automates boom and stick movements for more accurate cuts with less effort, while Cat Tilt Assist with Cat Tiltrotor adjusts tilt bucket angle automatically to match the surface design.

## BENEFITS

### Rough grading

- + Onboard touch display compares position of blade to design elevation to cut or fill to grade
- + Cut/fill data drives valves for automatic blade control, or is shown in-cab as visual guidance for operators



# QUARRIES

In today's quarry industry, efficiency, and production matter more than ever. To compete, you need to leverage the available technology and data to make informed, smart decisions. You also bear the responsibility of keeping your employees safe. No matter the challenges you face, Caterpillar has your back. Cat Ease of Use technologies can take some of the work out of your workday and keep your operation safer, more productive, and more informed. It's just one more way we support the quarry and aggregates industry.



## CAT PAYLOAD

When it comes to loading material, it is essential to know three things: what has been loaded and where, how much went on each truck or in the hopper, and where it went from there. Cat Payload technology not only delivers that information and keeps track of it over time, it also helps loader operators get the right load on board, every time. Cat Payload enhances operator effectiveness, reduces fuel costs and maximizes productivity on the jobsite with accurate, precise loading.

Tracking every truck load means money saved. Cat Payload helps operators optimize loads and lets managers monitor production every hour. Whether you're using wheel loaders or excavators, on-highway trucks, off-road haulers or hoppers, there is Cat Payload technology made for your applications. Operators can see how much they're lifting in every bucket load and when they've reached optimum hauler capacity. Managers can then track tonnage output on whatever time frame they need.

### ... for excavators

Next-generation excavators take on all kinds of tasks – loading, stockpiling, material handling, and more.

Cat Payload technology provides on-the-go weighing to help operators hit exact targets every time and avoid overloading, underloading, or misloading materials.

### ... for wheel loaders

Cat Payload for Wheel Loaders is an Ease of Use system that provides on-the-go weighing to assist operators with hitting precise load targets. Track daily productivity from the cab with quick access to truck target weights, loads and cycle counts, material movement, and daily totals.



# UNDERWATER

When it comes to underwater work, there are no shortage of challenges. From loss of signal or communication to water damage, even the simplest of tasks can become difficult to manage as you face constant exposure to water. Environmentally sensitive areas and uncharted territory can further pose significant health and safety risks to personnel.

With Cat Ease of Use technologies, you can focus on maximizing performance and profits instead of how to keep your employees safe or manage your equipment better. Developed with the close collaboration of our customers, Cat Ease of Use technologies were built with your operational considerations and needs in mind so that you can work efficiently and with peace of mind at any elevation.

# CAT GRADE

## ... for excavators

Cat Grade with 3D adds real-time satellite positioning guidance for your complex projects. This system uses two GNSS receivers and a correctional data source to achieve Real Time Kinematic (RTK) positioning guidance in three-dimensional space. Full 3D helps operators maximize productivity and job site efficiency when working with the complex designs often found on large infrastructure and commercial site projects.

## BENEFITS

- + Maintains accuracy across large job sites and multiple machines with in-field design plan functionality and control.
- + Tracks machine and bucket exact location on the job site.
- + Automatically compensates for excavator pitch and roll caused by sloping ground conditions.
- + Set up 2D avoidance zones within the design file to inform operators where not to work within the site plan.
- + Compatible with radios and base stations from Trimble, Topcon, and Leica.



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