Drones for Workplace Safety Fact Sheet

TDI | Safety @ Work
Division of Workers' Compensation

Drones, also called unmanned aerial vehicles (UAVs), do more than take pictures or deliver packages. Today, more workplaces use drones to help keep people safe, especially in high-risk places like chemical plants, oil refineries, construction sites, and disaster zones. By flying into dangerous areas, drones can scan hard-to-reach areas, look for hazards. and measure gas levels or heat without putting anyone at risk.[1]

How drones make work safer

Drones help workers avoid risky tasks in areas such as:

- Confined spaces or unstable structures.

- Sites with toxic gases or chemicals.

- Areas at risk of fire, explosion, or collapse.

- High or hard-to-reach locations needing aerial inspection like rooftops, towers, or rugged land).[2,3,4]

Companies use drones to:

- Inspect buildings, bridges, or equipment.

- Detect gas leaks and hot spots.

- Map and monitor disaster zones.

- Watch job sites in real time to spot hazards faster.[5]

Drone safety tools

Drones used for safety can include powerful tools such as:

- **Thermal cameras:**
  Spot heat changes that show fires, overheating machines, or people in danger.

- **Gas detectors:**
  Sense harmful gases like methane or carbon monoxide.

- **Light detection and ranging (LiDAR):**
  Use lasers to scan the ground and create 3D maps of objects below.

- **Artificial intelligence (AI):**
  Help drones fly safely, find cracks or hot spots, and predict equipment failures.[6,7,8,9]

Hazards of using drones at work

Using drones on job sites can come with risks.[10] These include:

- **Crash or fall hazards:**
  Drones can hit workers, equipment, or power lines.

- **Struck-by hazards:**
  A falling drone can injure people below.

- **Distractions:**
  A flying drone can distract workers from other dangers.

- **Electrical hazards.**
  Drones may cause problems near utility lines or electrical tools.

- **Data privacy:**
  Drones record video and collect data that must be protected.

Employers should plan for these risks and train workers on how to prevent injuries.

Key rules for drone use at work

Employers must follow safety rules from the Federal Aviation Administration (FAA) and the Occupational Safety and Health Administration (OSHA). While OSHA does not have a drone-specific rule, general safety rules still apply.

Agency	Code of Federal Regulations (CFR)/Section	Name of CFR	Description
FAA	14 CFR 107.12(a)	Remote Pilot Certificate	Drone pilots need a remote pilot certificate with a small unmanned aircraft system (UAS) rating.
FAA	14 CFR 107.51(b)	Operating Limitations for Small Unmanned Aircraft	Drones must stay within sight and under 400 feet.
FAA	14 CFR 89.105(a)	Remote Identification of Unmanned Aircraft	Most drones must broadcast their location during flight.
FAA	14 CFR 107.36	Carriage of hazardous material	Drones may not carry dangerous cargo unless approved.
OSHA	Section 5(a)(1)	General Duty Clause	Employers must maintain safe work-places. Drones that create risks, like flying too close, may violate this rule.

Key rules for drone use at work
(continued)

Agency	Code of Federal Regulations (CFR)/Section	Name of CFR	Description
OSHA	**29 CFR 1910 Subpart D**	**Walking-Working Surfaces**	Use fall protection when inspecting rooftops, scaffolds, or high platforms.
OSHA	**29 CFR 1910 Subpart I**	**Personal Protective Equipment**	Provide hard hats or safety gear when drones pose a falling or flying object hazard.
OSHA	**29 CFR 1926**	**Construction Safety Standards**	Follow rules for overhead work, cranes, and safety zones when using drones on construction sites.

Privacy and ethics

Drones can collect sensitive video and data.[11] Employers should:

- Tell workers when drones are being used.

- Protect data from being misused or shared without permission.

- Follow laws about where and how drones can fly.

Training and oversight

Only trained and certified people should fly drones at work. Employers should create clear rules and safety steps. Training should include:

- How to fly drones safely.

- What to do in an emergency.

- How to adjust for weather or site changes.

Tips for getting started

Thinking about drone use for workplace safety? Follow these steps:

1. **Look for hazards:**
   Walk the site and decide how drones can help.

2. **Pick the right drone:**
   Choose one with the right features for your job.

3. **Train your team:**
   Certify pilots and teach safety rules.

4. **Protect data:**
   Set rules for saving and sharing data.

5. **Check equipment:**
   Inspect drones often and keep software updated.

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3

What do you need the drone to do?

Job type	Helpful features
Inspect rooftops or tall towers.	Long flight time, strong GPS, HD camera.
Detect heat or gas leaks.	Thermal camera, gas sensors.
Fly indoors or in tight spaces.	Small size, obstacle sensors, stable hover.
Map large areas or disaster zones.	LiDAR, GPS mapping, long battery life.
Monitor job sites in real time.	Live video feed, 4K camera, strong signal.

What's next?

Drones don't replace workers. They help protect them. Expect smarter drones to become common on job sites. Whether you work in manufacturing, construction, energy, or emergency response, drones can boost safety, save time, and cut costs.

Want to learn more about workplace safety?
Visit www.txsafetyatwork.com or email us at safetytraining@tdi.texas.gov to connect with one of DWC's OSHA-authorized safety experts.

Scan to subscribe to Safety@Work—your source for workplace safety & health news, OSHA updates, and training alerts.

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5