

21 Breakthrough Firefighting Technologies for 2025 (Free Procurement Checklist)

Advanced Firefighting Drones

1. Tethered Firefighting Drones

Drones like the LT-UAVFW system can carry 100kg payloads (water/equipment) and reach heights of 100m with ultra-light hoses. Ideal for high-rise fires.

 [LT-UAVFW System](#)

2. Search/Rescue Drones with Thermal Imaging

Equipped with FLIR Zenmuse XT2 cameras and AI human detection to locate victims through smoke.

 [FLIR Zenmuse XT2](#)

 [Colorado Springs Drone Program](#)

3. Drone Docking Stations

Automated systems like FlytBase enable rapid deployment and fleet management.

 [FlytBase Management System](#)

4. Prop-Wash Drones

Use downward wind force to disperse toxic fumes and create survivable air pockets for victims.

 [Hernando County Fire Rescue](#)

Smart Firefighting Apparatus

5. Telescopic Fire Trucks

Pierce Enforcer Ascendant 100' aerial ladders with 75m+ reach and integrated drone launch systems.

 [Pierce Manufacturing](#)

6. Collision Avoidance Mitigation Systems (CAMS)

AI-powered radar systems to prevent vehicle accidents during emergency responses.

 [Firehouse Tech Trends](#)

7. Hybrid/Electric Pumpers

Pierce Volterra™ trucks with 2,000 GPM capacity and silent operation modes.

 [Pierce Volterra](#)

8. Smart Nozzles

Push-button water activation to reduce radio reliance during chaotic fireground operations.

 [Hernando County Smart Nozzles](#)

AI & Data-Driven Systems

9. AI-Powered CAD-to-CAD Dispatch

Real-time coordination for mutual aid responses using AI analysis.

 [Firehouse AI Trends](#)

10. Predictive Fire Spread Software

Integrates weather/GIS data to forecast fire behavior (e.g., Lockheed Martin's digital fire models).

 [Lockheed Martin AI](#)

11. Digital Twins for Buildings

3D models for pre-incident planning and real-time fire spread simulation.

 [Technavio Fire Protection Market](#)

12. NERIS (National Emergency Response Information System)

Replaces NFIRS with geospatial data and machine learning for risk reduction.

 [US Fire Administration NERIS](#)

Firefighter Wearables & PPE

12. C-THRU AR Helmets

Augmented reality heads-up displays with thermal imaging and navigation aids.

 [Qwake Technologies C-THRU](#)

14. Biometric Trackers (e.g., WHOOP Bands)

Monitor heart rate, heat stress, and fatigue in real-time.

 [Firehouse Wearable Tech](#)

15. PFAS-Free Turnout Gear

Compliant with updated OSHA/NFP standards to reduce carcinogen exposure.

 [NFPA Standards](#)

Communication & Command Tools

16. 5G Rugged Tablets

Panasonic TOUGHBOOK devices with glove-touch screens for incident tracking.

 [Tablet Command Software](#)

17. Satellite-to-Cell Comms

Ensures connectivity in rural/urban dead zones (e.g., Starlink integration).

 [Colorado Springs Starlink Drones](#)

Training & Simulation

18. XR (AR/VR) Platforms

High-rise and wildfire scenario training with AI-driven analytics.

 [Firehouse VR Training](#)

19. AI Training Analytics

Tracks skill retention and identifies gaps in firefighter performance.

 [Technavio AI in Fire Safety](#)

Infrastructure Upgrades

20. IoT Sensor Networks

Early smoke/heat detection with wireless connectivity for older buildings.

 [Impact Fire IoT Detection](#)

21. Automated Secure Alarm Protocol (ASAP)

Direct alarm-to-PSAP alerts to reduce response times.

 [Technavio ASAP Systems](#)