

SAFETY SOLUTIONS FOR THE  
**CONSTRUCTION MARKET**

# WIRELESS SAFETY SOLUTIONS



# INTRODUCTION

## Construction Safety

Across the UK, EU and indeed globally, the construction industry has made significant progress in recent years to improve safe practices on project sites across construction and industrial sites. This focus on safety is not just limited to the workforce directly on site, but also a wide range of contractors and visitors, as well as residents and businesses in the local community.

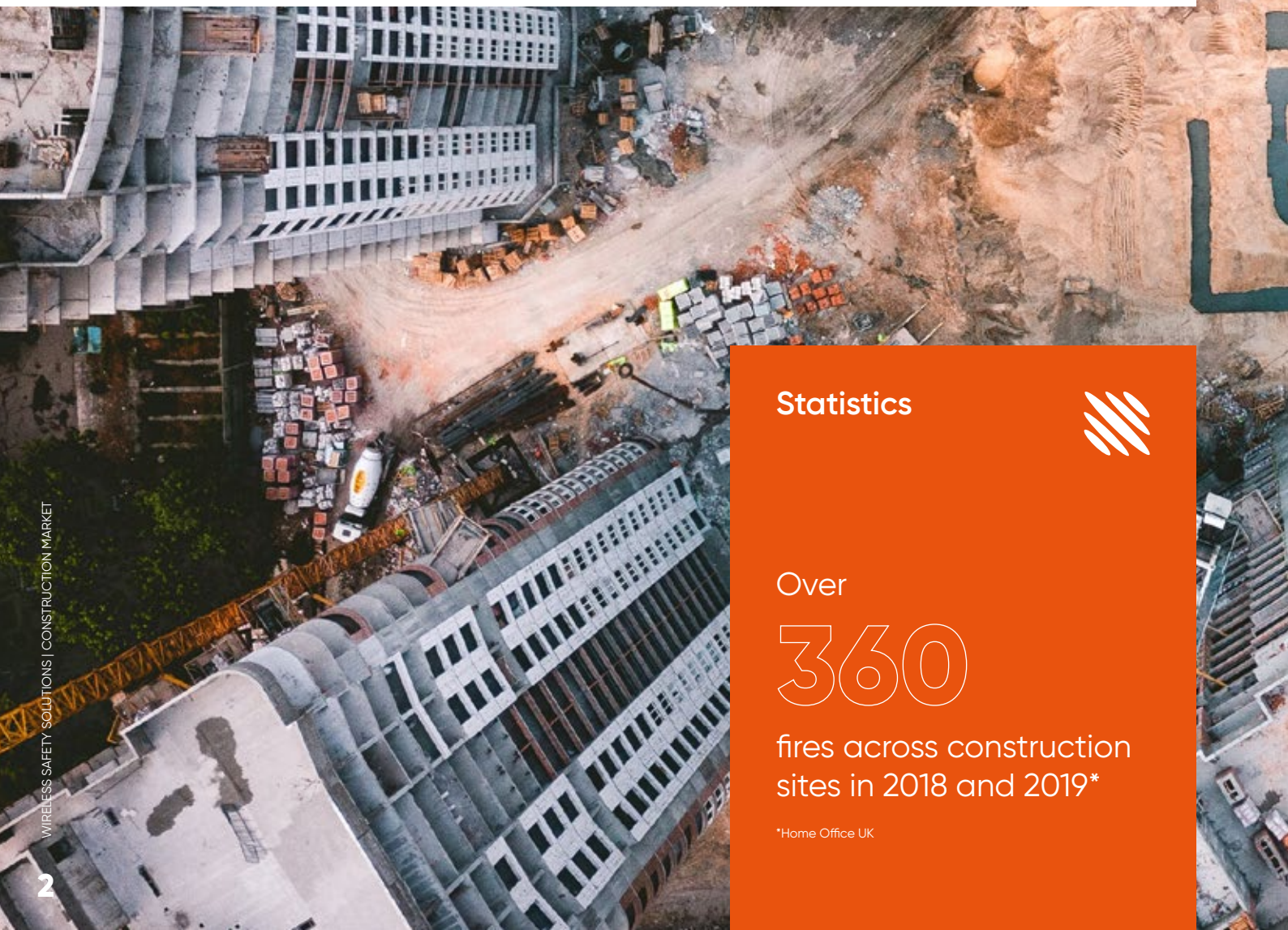
Despite the major progress that has been made, construction sites remain one of the highest risk workplace environments. Latest official statistics from the Home Office in the UK mention that there were over 360 fires across construction sites in 2018-2019.

Then there is the human cost – incidents on site causing injuries to 4,546 people on site in 2019-2020 according to the Health and Safety Executive, with fatal injuries totalling 44... and all this occurring in one of world's most regulated nations.

There is a big hit financially too – the total annual cost of construction related injuries

works out at approximately £1.2 billion a year, with 2.1 million working days lost in the same 2018-2019 period. Major hazards such as fire and hot works, trips and falls, working at height, confined spaces, and large plant operations are a common occurrence.

The inherently dangerous nature of construction works, combined with the constantly changing nature of risks on-site, give a sense of the challenges faced by construction management teams who are working hard to ensure the highest levels of safety are maintained on their projects. The adoption of innovative technology is a rapidly growing sector that can help address this challenge.



### Statistics



Over

360

fires across construction sites in 2018 and 2019\*

\*Home Office UK



## Statistics



Incidents on site  
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\*Home Office UK

## How Technology is making sites safer

Technology has allowed us to advance in almost every area of society and industry, and has created new ways for construction and industrial sites to monitor and manage risk, improve safety processes, and communicate effectively with relevant personnel in the event of an emergency.

Every site – from a construction site to a rail depot, shipyard to historic building, education building to a void property – will have unique considerations when it comes to site safety and security. That is where Ramtech's range of innovative wireless solutions can help.

Ramtech has over 10 years expertise of designing and deploying wireless technology into life-safety applications for the global construction industry. Since 2009, the WES wireless alarm system has been protecting construction sites and the personnel working on them, and was the first wireless alarm system to be designed specifically to meet the challenges of the construction sector.

Based on our own advanced technology, the WES wireless alarm system can be rapidly deployed on sites to create a robust, secure network – even in complex environments such as high rise buildings or underground tunnels – that monitors and protects sites 24/7. The REACT system extends this protection by providing real-time notifications of any site alarms to relevant personnel so that accurate decisions can be made and immediate actions taken.

We've installed our systems worldwide including across North America, the EU, Middle East, UK and more. As you read this, Ramtech's market-leading solutions are helping to safeguard employees, equipment and properties from site emergencies.

# RAMTECH SOLUTIONS IN THE REAL WORLD

## Amazon Distribution (Colorado, USA)

Ramtech North America recently supplied the solutions to Amazon's distribution and sorting center adjacent to the Colorado Springs Airport. The five-story building will be the largest in Colorado Springs, and likely in Colorado; it is larger than the combined size of the Air Force Academy's Fairchild Hall and The Citadel and Chapel Hills malls. The units deployed included the WES wireless call points and automatic smoke sensors, which will ensure workers are protected no matter what the emergency.



## European Central Bank (Frankfurt, Germany)

The European Central Bank (ECB) headquarters in Frankfurt utilised the fully wireless, EN54-25 compliant WES fire alarm solution during its construction. Fire safety was critical on the ECB project as only 30 floors of the 40-storey building were undergoing refurbishment. Staff continued to occupy the remaining space alongside personnel involved in the refurbishment while the work was being carried out.





## Manchester Airport Transformation Project (Manchester, UK)

The challenges at Manchester Airport Transformation Project were centred on the need for a wireless alert system for the site that was scalable to a project of this size, whilst being fast and easy to reposition. The combined solution of REACT and WES was used to provide 24/7 protection across the site. When the project completed, the contractor simply used the solutions again on another site.

## New Schierstein Bridge (Mainz, Germany)

WES from Ramtech was specified during the €250 million construction project of an entirely new four-lane bridge spanning the Rhine in Germany – connecting the major conurbations of Mainz and Wiesbaden. The contractors chose the WES system due to its EN54-25 compliance, 24/7 coverage, ease of install, 3-year battery life and movability, plus it wasn't just the staff and physical equipment it needed to protect...a local protected botanical area needed an early warning if fire broke out.



## Naval Academy (Maryland, USA)

Ramtech solutions were used on a new building on a Naval Academy site in Maryland. Site managers were impressed the features of the WES wireless evacuation system, one of the favourites being mobile phone notifications if alerts are raised, so site managers are kept informed on and off site. Automatic smart sensors for smoke (including dust resistance) and heat were important too, as it helps the system to provide 24/7 monitoring of the site.



# SAFEGUARD YOUR PEOPLE AND SITE WITH WES





RAMTECHGLOBAL.COM/WES/

# RAMTECH WIRELESS TECHNOLOGIES

## Wireless Working Together

Ramtech's expertise in wireless technology goes back to our origins in 1990. Our solutions have always embraced the latest in wireless innovation, and this continues to be our main focus to help achieve our vision of empowering customers to save lives, protect assets and gain insights.

The WES system uses Category 1, Euro-harmonised radio in compliance with European standards. The system uses an innovative mesh network to communicate 24/7 between all paired units to give the best possible coverage. Units can be added or taken away easily without disrupting the whole system – and they can be moved simply too. This also means that if a unit should fail for any reason, the rest of the units will continue to operate as a complete system.

The latest WES3 version also includes 4G connectivity, which allows notifications to be sent via the REACT system. This system sends alerts via the virtual REACT cloud, meaning real time notifications can be received by the likes of site managers whether they are on or off site.

The following pages go into more details about our current solutions and their unique benefits.





# THE WES SOLUTION

## Delivering 24/7 Wireless Safety

- Completely wireless system that can be moved easily around sites
- Manual fire call points with medical alert feature
- Unique automatic smoke / heat sensors for 24/7 monitoring
- Satisfies various regulations, such as EN54-25
- Enables off site communications via the REACT platform
- Simple to install without engineer visits, 3 year battery life and 2 year warranty

The emergency alerts offered by WES means your site will benefit from the most up-to-date wireless evacuation alarms available on the market and is fully compliant to a range of health and safety requirements, such as EN54-25 and HSG168.

This advanced system has been developed and engineered to provide a simple, fast and secure method of communicating fire and – with WES3 – medical emergencies in the complex environmental conditions of construction sites.

Both the latest WES3 system, and the WES+ system, come with a two-year warranty. Units are simple to install without the need for expensive engineers – they can be taken away or moved easily, or additional units can be added quickly.

## WES VERSUS WES+

### What is the difference?

WES is currently available in two variations – both of which are fully supported by our teams. The latest WES3 range offers wireless fire safety like never before. It's trusted across the world to protect all manner of construction sites, temporary buildings and a range of industrial sites such as power stations and shipyards. WES+ is similar and still suits many sites, offering the same fire safeguarding as WES3 with less features. Below is a breakdown of the differences:

	WES3	WES+
Medical call point	✓	✗
Optional inspection delay	✓	✗
Pre-alarm functions	✓	✗
Full isolation system test mode	✓	✗
4G connectivity	✓	✗
Works with Ramtech's REACT	✓	✗

# WES DEPLOYMENT

## Our WES Units

The WES3 and WES+ systems are completely wireless which means they are powered by batteries, which have a 3-year life under normal use. The total lack of wires means they can be positioned almost anywhere across a site. Installation is simple and a full system can be up and running in minutes, without the need of an engineer to visit the site. Units are positioned in accordance with your site plan and they can be moved easily around a site as it evolves. For example, WES call points should be located on all escape routes and 5ft from all exits and stairwell.



### Base Station / Control Unit

WES CONNECT (available for WES3 only) and the Base Station are the brains of the WES network and allow site networks to be created, modified, and monitored from anywhere on site. In addition, WES CONNECT includes 4G cellular connectivity, allowing all alerts to be communicated to relevant personnel off-site, using the cloud-based REACT notification system, a third-party monitoring system, or simple SMS text message.



### Dust Resistant Smoke Detector

Unique to WES, the dust resistant sensor provides 24/7 protection in unoccupied areas of site or overnight/weekends. They can detect smoke particles from 25ft around the sensor head and can differentiate between smoke and dust particles, significantly reducing the risk of false alarms. All sensors are horizontally mounted and are for internal use.



### Heat Detector

24/7 automatic detection against abnormal heat increases, ideal in areas such as kitchens or similar areas with an increased risk of false alarms. Heat sensors are also used in areas of hot works and where flammable materials may be stored. Abnormal heat rises can be detected around 17.5ft from the sensor head. Horizontally mounted, for internal use.



## Emergency Call Points

With a WES emergency call point you can raise a fire alarm quickly, plus with the WES3 system version you can alert management to a medical emergency. Call points are suitable for indoor and outdoor use, under IP55 conditions. The siren sounds at up to 97dB(A). Vertically mounted.



## Interface

Allows WES to be seamlessly integrated with third party systems such as lifts, access control and more. This aids efficiency and general protection across the site when used in conjunction with the WES system.



## WES App

Both CONNECT and the Base Station can be accessed using the WES tablet app for Android. The app allows users to remotely view the system's status, and an accurate log of all system events can be downloaded via USB to allow robust reporting of on-site issues.

# THE WES SYSTEM

## Technical Information

The WES system uses Category 1, Euro-harmonised radio in compliance with European standards covering the use of radio technology in emergency equipment (ETSI 300-220-1).

WES is also independently tested, CE marked and compliant with all key safety legislation. Our robust and hard-wearing units are suitable for internal or external use, with weather sealing and a 3-year battery life under normal use.

The WES range has grown to become a truly global alarm system, currently protecting sites in over 30 countries around the world. Using our innovative radio technology, WES3 has been developed to satisfy all applicable Radio and Communications legislation in international territories, including the relevant parts of ETSI, FCC and EMC test standards.

	Dimension (mm)	IP Rating	Noise Level	Compatible With	Operating Temperature (°C)
Call Point (Strobe and Sounder)	235x161x128*	IP55	Max. 97 dB	Other WES Units	-25 to +70
Call Point (Sounder)	235x161x128*	IP55	Max. 97 dB	Other WES Units	-25 to +70
Heat Sensor	235x161x118*	N/A	N/A	Other WES Units	-25 to +70
Dust Resistant Smoke Detector	235x161x108*	N/A	N/A	Other WES Units	-25 to +70
Interface	235 x 161 x 58**	N/A	N/A	Relay input/ output to connect to additional systems	-10 to +55
Link	235 x 161 x 58*	N/A	N/A	Other WES Units	-25 to +70
Base Station	235x161x128*	N/A	N/A	Other WES Units	-25 to +70
CONNECT	235x161x128*	IP55	N/A	Other WES Units	-25 to +70





# REACT

## Connected Site Notifications

- Designed to work with WES3
- 24/7 cloud-based safety system with on and off site communication
- Real time alerts sent to those who need to know about incidents on site
- Helps protect teams, assets and properties
- Alerts include SOS, fire, hazard, water damage and more
- Links into other on-site systems via an API

REACT offers 24/7 notifications to protect your team, equipment and properties. REACT is a cloud-based solution that can raise alerts in real time, sent straight to the people who can act on them. Notifications and alerts are communicated via a simple to use mobile app that sends data instantly via the cloud to those who need to know – meaning they can respond as necessary, rapidly. REACT also works with WES3 (optional) to help increase your connected site safety capabilities.

## The REACT Solutions in Detail

There are several tools that make up the REACT solution. They are:

### REACT Browser Management Platform

The nerve centre of the REACT solution, the online dashboard allows easy online setup and customisation of users, sites, work groups, documents, locations, and alerts.

- Administrators can update all elements of the platform as required, from map changes to adding or removing users.
- Simply maintain site-specific and general-purpose safety information in one central location.
- Easily access all of your active alerts on the browser management dashboard.
- All activity logs are securely stored online for auditing or incident investigation.



## REACT Mobile App

The user-friendly REACT app (available on Apple and Android mobile devices) delivers real-time alerts to all relevant personnel, along with emergency response information such as site plans, evacuation routes and emergency procedures. Users can alert the site supervisor to the specific issue with an automatic tag to the exact location of the situation with geo-coordinates.

Alerts include:

- **SOS Alert** - This emergency alert is ideal for alerting receivers to an unexpected situation.
- **Water Damage** - This alert is suitable for water damage, be it a burst pipe, sewage issues or flooding.
- **Lone Worker** - Perfect for those who work alone who could be exposed to dangers, this feature allows them to check in at regular intervals with the added advantage of location positioning via GPS.
- **Hazard Report** - For reporting hazard incidents and near-misses.
- **Medical Alert** - This quick and easy alert is a fast way to alert those who need to know about medical emergencies.
- **Fire Alert** - This raises a fire alert within REACT if such an emergency was to occur.



Future concept visuals for REACT 2021/22

## Additional System Integration

REACT is designed to work with other systems on site, including Ramtech's WES system. REACT can connect to other systems via an API. Alerts through these systems can be communicated via the cloud with REACT.



Our Ramtech REACT app is available on the following platforms:



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Offering our customer base the latest and most compliant safety equipment for their projects is paramount for us, this is why we use Ramtech's wireless solutions such as WES and REACT across our projects. Reliability and ease of use is vital and that's why we have chosen the Ramtech solutions.

Operations Director at **ETS (SW)**

“

As this site is using timber frame construction and is spread over such a large area providing adequate fire protection could have been difficult but Ramtech's WES system has been the perfect solution and is proving to be a simple and effective to use.

Works Manager at **Morgan Sindall**

“

We carried out a very careful evaluation of a number of fire alarm systems and so we are confident that WES offers us the best all round benefits and means we are EN54-25 compliant.

Works Manager at **Sir Robert McAlpine**

