A guide for facilities managers -
Improve the management of building
fire compartmentation

Introduction

There are many areas of statutory compliance within any built environment that are sometimes forgotten, not adequately reviewed or maintained as a live reporting basis. Fire compartmentation maintainability and the ability to identify significant risk associated with fire are often overlooked. With the recent events of the Grenfell Tower fire still raw within our nation, highlighting the vulnerability of human life within any built environment is of paramount priority importance. These tragic events have led to a number of reviews articulating the lack of current control and management processes. These in turn have led further to recent regulatory reviews of the current building regulations, British Standards BS9999 2017 Fire safety in the design, management and use of buildings - Code of practice. Protection to life and property is of paramount priority in any built environment.

Objectives

The key object is to store the fire compartmentation (commonly known as fire break or passive fire protection) register as a visual risk register within the AssetWhere platform (AWP). This would include data on other fire protection measures critical to the fire compartments integrity, such as fire doors, fire dampers or smoke curtains. By holding this information and data within the AWP allows for simple change management ensuring swift and easy control of change within an existing or new environment. Correct processes related to the different assets are clearly documented and can be easily controlled within the areas of change or variance.

Approach

The AssetWhere platform (AWP) is an electronic register of assets or risks. It provides secure access with the use of a login (usually an email address) and a password to those that need to know. Different administration rights can be granted allowing individuals to simply view or make changes. The AWP uses Google maps as a starting point. The buildings drawings detailing fire compartments (usually based on the original CAD of the building) are overlaid on to Google maps. The AWP allows specific fire compartment risks such as a fire stopped penetration through a wall or ceiling, fire door or fire damper to be

A guide for facilities managers -
Improve the management of building
fire compartmentation

accurately located along with data, images or other files associated with the specific risk saved against that risk. Documented processes for the subsequent management of the risk can also be saved. The technology also provides the facility to set rules and send notifications as reminders.

This approach is a single tiered requirement. Allowing customers to upload their existing, new or modified fire compartmentation register onto AWP. Allowing visibility and management of the environments fire compartmentation across the entire estate.

The sole purpose of fire compartmentation is to ensure the protection of life and property by:

- Preventing spread of fire and smoke
- Subdivide buildings, areas or zones into manageable areas of risk
- Provide adequate Means of Escape

This diagram is indicating a prime example of fire compartmentation. Treating the whole areas as a passive zone to prevent the spread of fire or smoke to any alternative area within a specified time period.
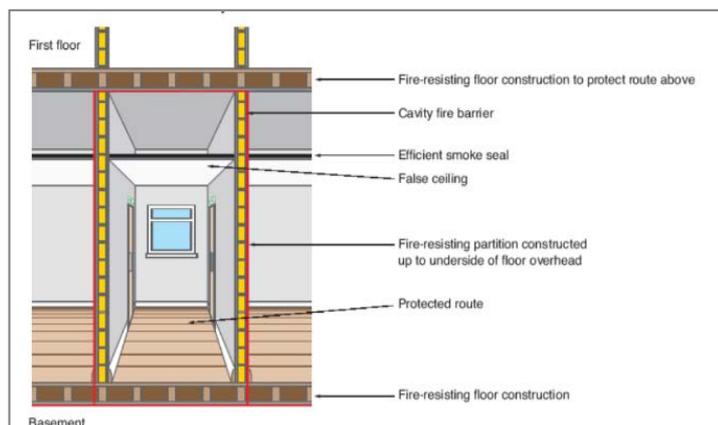

These requirements require the routine maintenance of fire barrier walls, ceilings, floors doors and dampers. Additionally, all should be properly repaired when damaged, altered, breached or penetrated. Any penetrations found should be repaired with approved methods capable of resisting the passage of smoke and fire.

Methodology

BS9999: 2017 The design, management and use of buildings to ensure effective fire protection for all people in and around buildings provides general recommendations and guidance. These are applicable to new buildings and to alterations, extensions and changes of use of an existing building. Covers the entire life cycle of a building, using a risk assessment approach and risk profiles. Looks at means of escape and evacuation strategy, access and fire-fighting facilities, building structure including load and non-load bearing elements and special risk protection.

A guide for facilities managers -
Improve the management of building
fire compartmentation
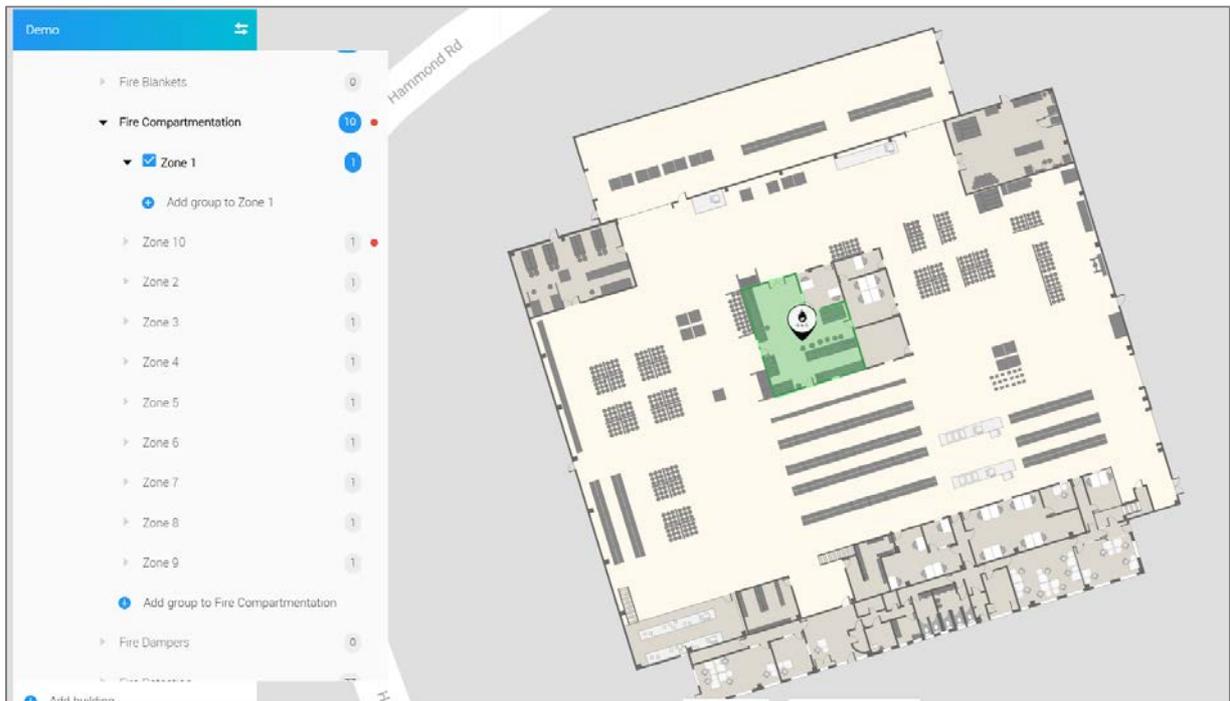
All of these will align with areas of the current fire risk assessments and any loss prevention approaches already in place.

A guide for facilities managers -
Improve the management of building
fire compartmentation
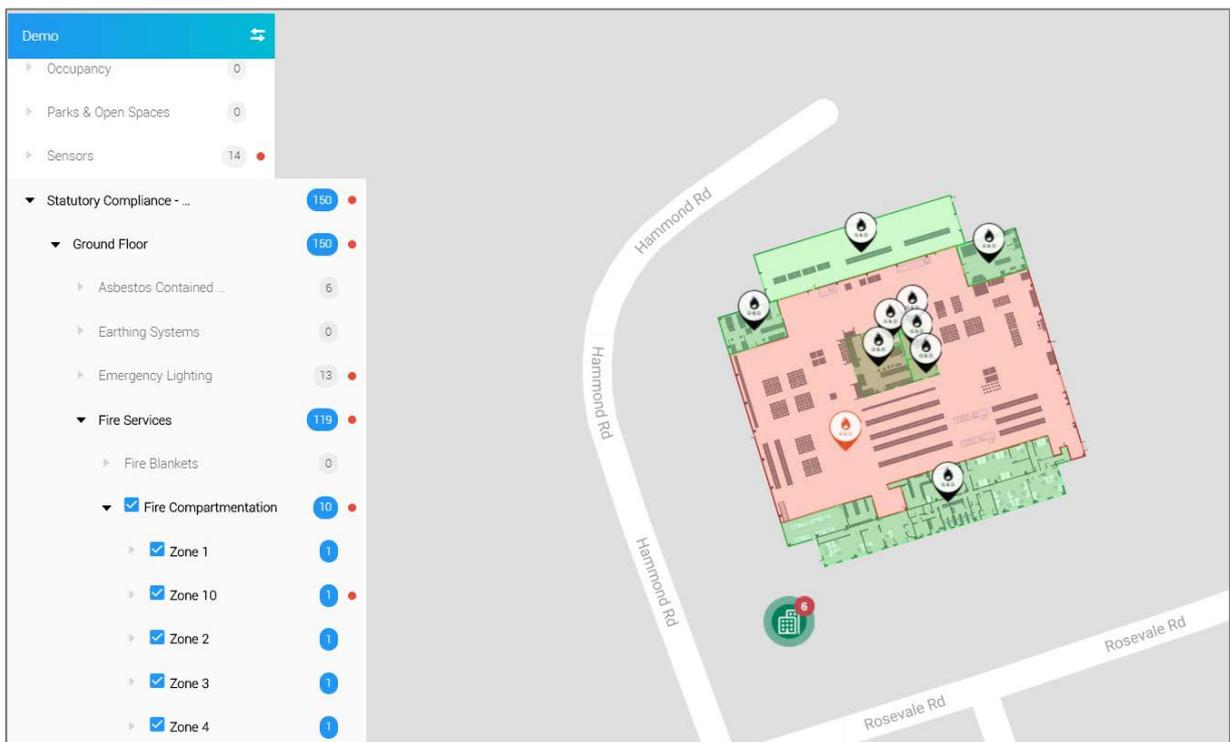
Examples

Firestop survey must include:
- Provide a detailed fire barrier survey, Statement of Conditions (SOC) including type of barrier, description of penetration/opening needing firestop installation and recommended system proposed.
- Details of minor firestop installation ("Caulk and Walk").
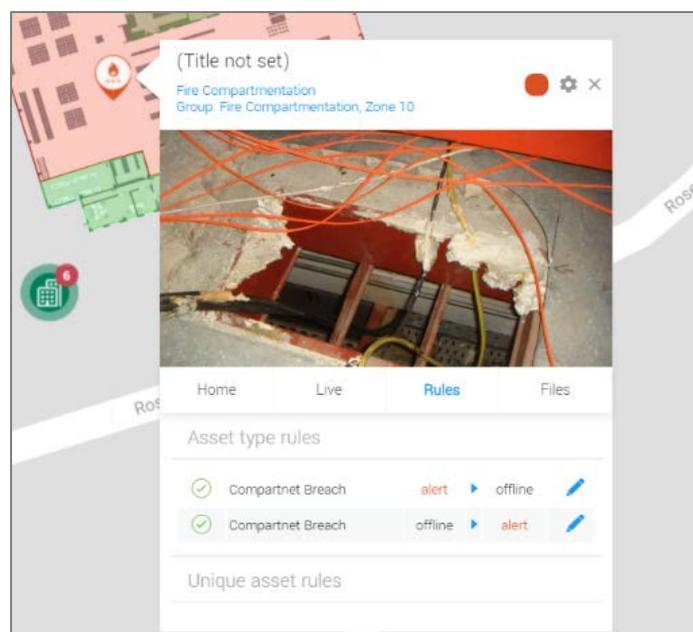- Digital pictures and additional information about penetration in need of repair

Firestop installation must include:
- Installation of firestop system used based on SOC
- Preparation of submittal documents for authority having jurisdiction (AHJ) submission
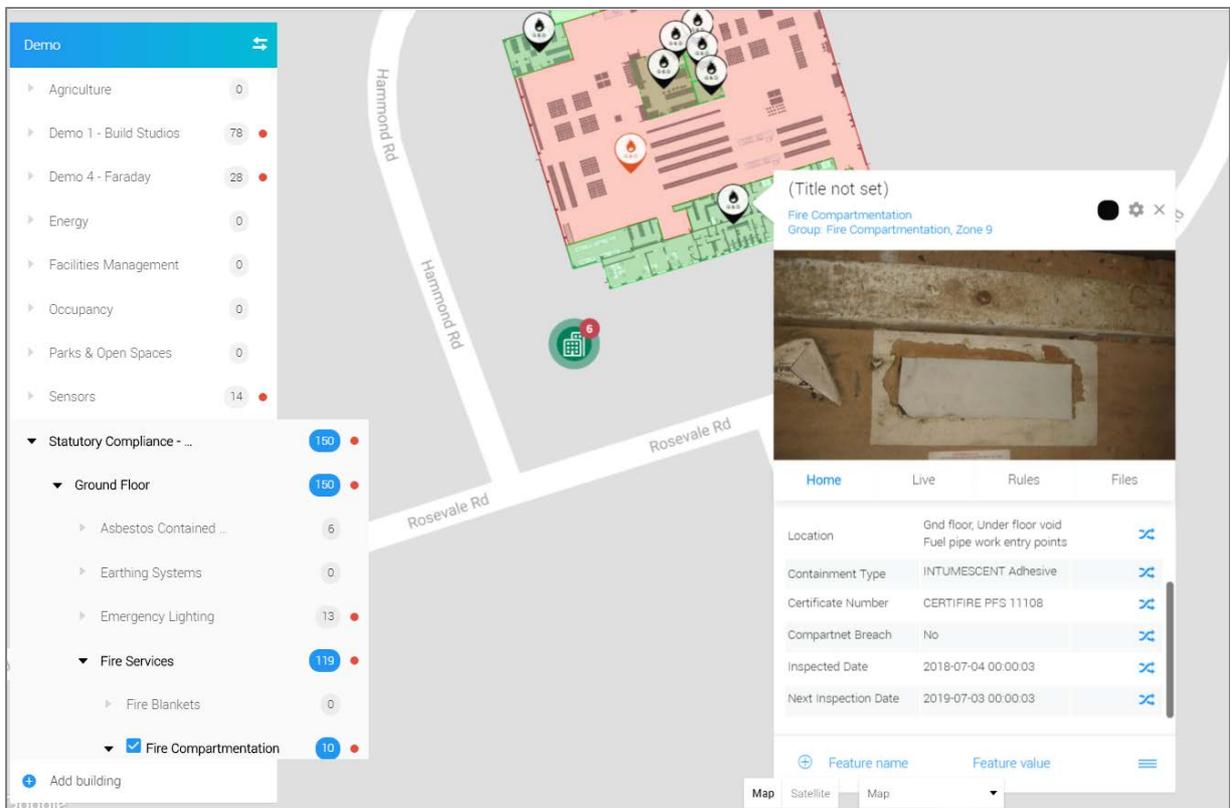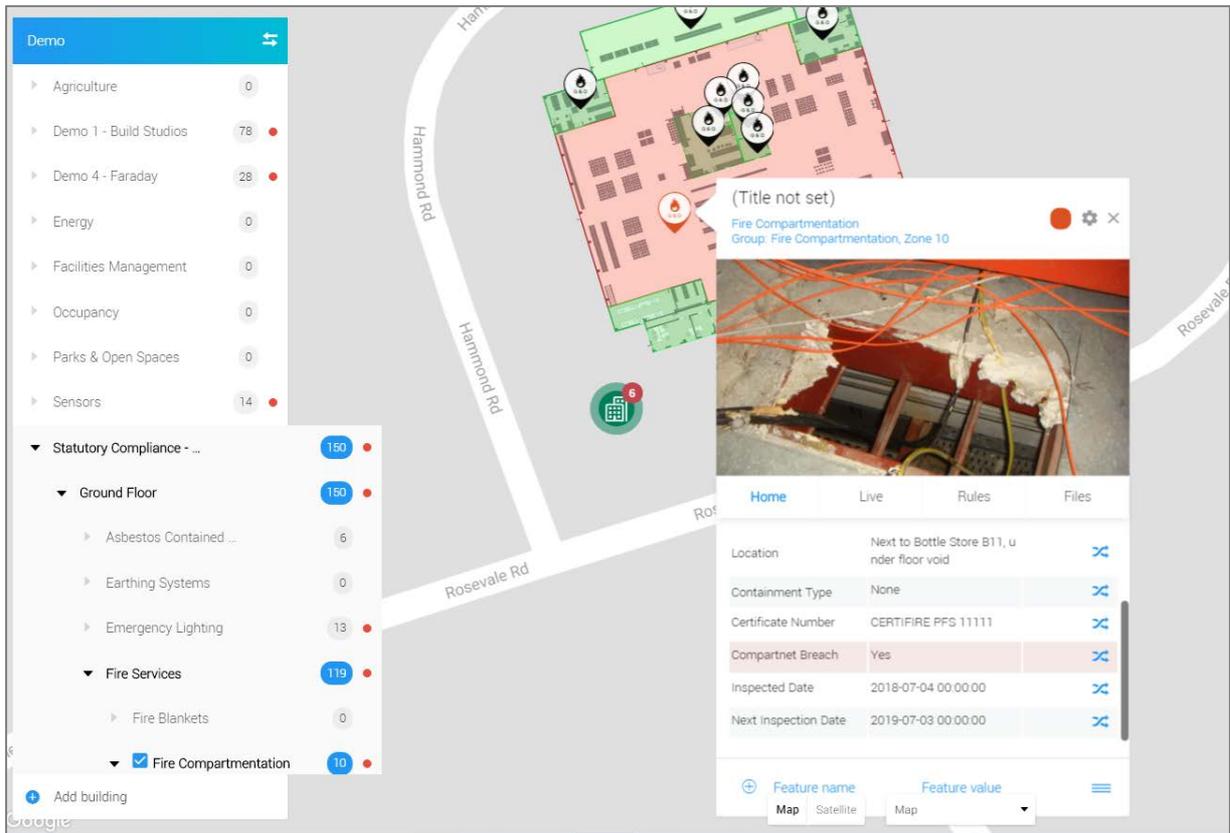- Master report with digital documentation listing

Other fire compartment risks for consideration include:
- **Fire Doors**
    - Type of door, manufacturer, size, fire rating, maintenance requirements, closer type.
- **Fire Dampers**
    - Type of damper, manufacturer, size, manual or electrical reset, maintenance requirements

All of which can be articulated within the layout and structure of the AWP. Simplistic rules applied to be able to manage change through any project management requirements with the ability to attach files and certification.

All of this aligns with the existing building fire zoning already in place by recreating geo zones within the floor layouts.

A guide for facilities managers -
Improve the management of building
fire compartmentation

A guide for facilities managers -
Improve the management of building
fire compartmentation

Tangible Benefits

A number of tangible commercial and operational benefits support this as highlighted below:

- Protection of life
- Limiting potential damage to critical equipment, business operations and infrastructure
- Reduction in SLA and KPI failures equating to financial fines or unavailability penalties
- Increase statutory compliance – negating potential Non conformity notifications and legislative action from regulatory bodies

The ability to manage and maintain large penetrations in significant compartments such as plant rooms, risers, ceiling voids and store rooms

A guide for facilities managers -
Improve the management of building
fire compartmentation

Change Control

There are a number of change and control management processes that should be implemented. However, these will be unique to each environment and there would be an expectation that the building owner and operator would already have these in place in a manual format. These should be aligned to the environment fire risk assessment and specific loss prevention plans already in place. .

Data Governance and Sign off

Drax Technology take no responsibility for the quality of this data, all data is under the control and governance of the users, management team and key stakeholders.
Drax Technology would recommend in all instances that there be a three-tiered structure to all change management processes. The Asset Operator – The creator of the change, The Asset Manager – The person with overall operational management responsibility and The Asset Owner – The person with the financial control (In most cases the executive client).

Commercial management must be notified once approval of the process has been completed. This is to ensure all commercial visibility is available to the management structure. An example being an increase in PPM labour loading, or commercial exclusions under comprehensive, or semi comprehensive funding. This may also have a positive impact upon warranty or liability requirements.

Exclusions

Exclusions from this protocol are the areas of commercial, life cycle, forecasting, PPM, reactive or corrective management or scheduling. Therefore, condition and remaining customer fields can be applied but are not statutory or mandatory to apply. Drax Technology will not apply these reporting functions. Any reportable functions will not be inclusive off asset variance (i.e. a change in commercial liabilities or capturing condition variance against any asset.).

A guide for facilities managers -
Improve the management of building
fire compartmentation

A guide for facilities managers -
Improve the management of building
fire compartmentation

Case Study

A major London NHS Trust is currently working with Drax Technology to investigate the feasibility of using sensors to monitor fire doors within one of its hospitals. Drax Technology are currently running a trial in a busy hospital street to monitor fire doors. Doors equipped with sensors are plotted on the AWP along with the door's specification and an image of the door. The hospital's FM provider is keen to measure the status and performance of its fire doors as they are a critical part of the buildings fire strategy and key to its integrity in the event of a fire. They also have SLA's to meet with respect to keeping the doors operational.

"We can see real potential in using this type of technology. The sensors are simple to install in a working hospital and have already provided us with some hard evidence as to the extent of traffic through the doors. From this we can now see opportunities to plan for preventative maintenance focusing our efforts on the doors with the greatest usage. This should have some real productivity benefits. Additionally, following FD&A testing we can view whether all fire doors have closed within a predetermined time and immediately respond to fix any doors that haven't closed properly. Again, this has the potential to save valuable time and help us meet our SLA." Say's, Mazin Daoud B.Eng(hons) Dip.Poll.Con Dip.F.D. MIHEEM MIFireEng, Fire Safety Engineer and Chair of the IHEEM Fire Technical Platform.

A guide for facilities managers -
Improve the management of building
fire compartmentation
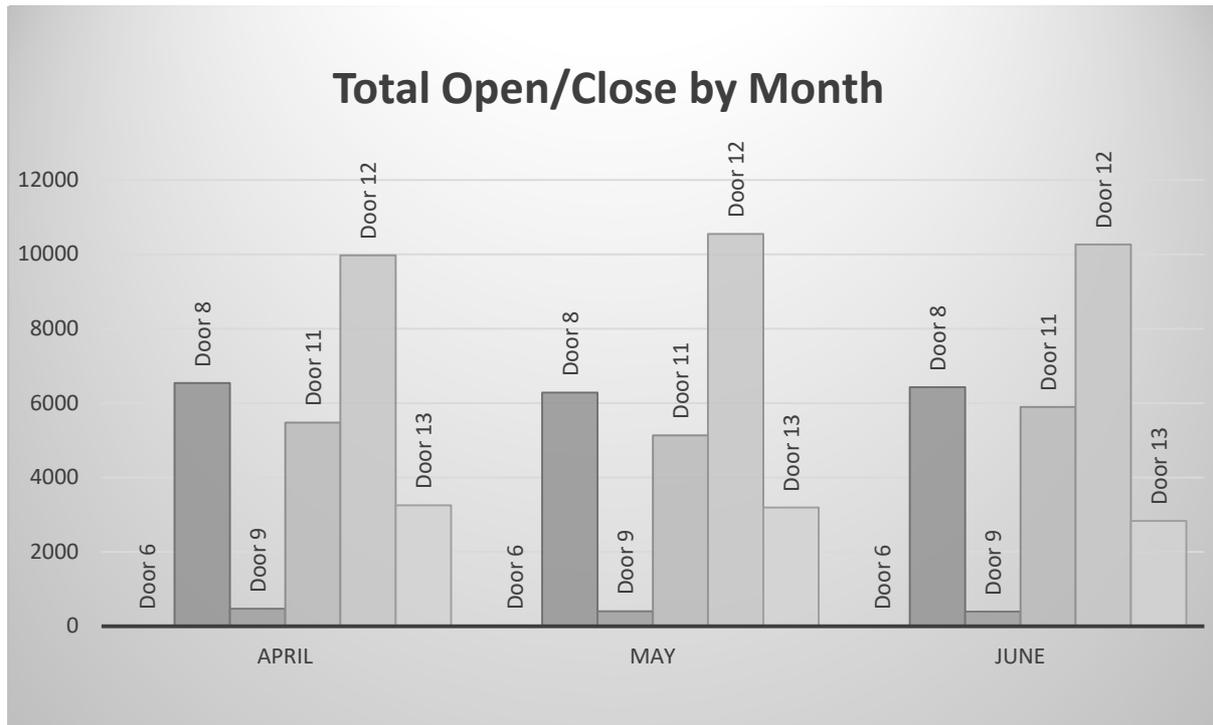
About Drax Technology

Founded in 1997, Drax Technology is one of the UK's leading independent providers of integrated fire protection and alarm management solutions to organisations operating in a wide range of market sectors including healthcare, education, retail, government, manufacturing, transport and commercial. Drax is committed to ensuring the highest level of protection for people and property whilst enabling customers to comply with all business continuity and regulatory requirements. Drax's products are available through a national distribution network of accredited partners and resellers, all of which have been selected for their considerable experience in the fire industry. With fully trained personnel and a commitment to delivering the highest levels of service and support, they ensure that customers are provided with the best possible solutions. Learn more at www.draxtechnology.com