Fire safety in industrial buildings is a particularly big challenge since, usually, these types of buildings have a high fire load. In addition to the merchandise, installations contain elements that spur on the spread of flames, like plastic materials, cardboard or wood, among others. To minimise this risk, warehouses and other industrial buildings must have fire prevention, detection and suppression systems.

The warehouse is the key element in the supply chain of a business. For this reason, it is imperative to be vigilant and keep it in top shape, to eliminate risks to personnel, to minimise damage to goods and to avoid hold ups in customer service.

Interruptions in services or the total or partial destruction of a warehouse can lead to enormous losses, both in materials and money, in addition to the damage to a company's corporate image.

Passive and active protective measures are essential to fit out installations with a proper level of safety for both personnel and the goods being stored, minimise losses and keep a business operational.

The primary active protection fire safety systems in industrial buildings are:

Manual systems These systems are usually recommended to contain small outbreaks of fire or, if a fire is already spreading, to aid the other intervening equipment. Portable fire extinguishers, fire hoses and hydrants are first response items to deal with a fire and are recommended for small, low-risk buildings. In large sized warehouses or those with a larger fire load, these items are used in addition to the automatic fire equipment.

Automatic fire alarm and detection systems Locating a fire when it first ignites is crucial to minimise fire damage. There are devices that can detect a fire via the presence of smoke, flames or rising temperatures.

Audible signals are provided to alert staff that a fire has occurred, and evacuation of the premises should commence. Visual warning is also provided in high noise areas.

Automatic sprinkler systems are most commonly used in storage buildings. They consist of a network of pressurised water pipes that are equipped with discharge nozzles (sprinklers) appropriately distributed throughout the warehouse, for example, inside the racks. Sprinkler nozzles are covered by a heat-sensitive material that keeps them closed when they are not in use.

Some industrial buildings contain unique features, either for the stored goods, or due to environmental or constructive conditions, which require the inclusion of customised firefighting and safety systems. For instance, in warehouses with combustible or flammable liquid products it is usual to incorporate foam fire safety systems. Typically, water-foam deluge valves or foam-forming liquid injectors are installed in the sprinkler system.

Smoke extraction systems are as vital as the automatic firefighting elements. The smoke and toxic gases from a fire rise to the ceiling of the building, where they accumulate and thicken, filling the area, until they reach where people are (which complicates evacuation measures). Smoke extraction combined with the intervention of automatic sprinklers will help keep the temperature of these gases below levels that would otherwise damage the structure.

Fire can have a devastating effect on a business and poses a serious risk to the safety and welfare of building occupants. Business interruption because of damage to expensive equipment and lost data can be difficult to recover from.

It is important that business owners understand the consequences and invest in appropriate fire protection solutions.