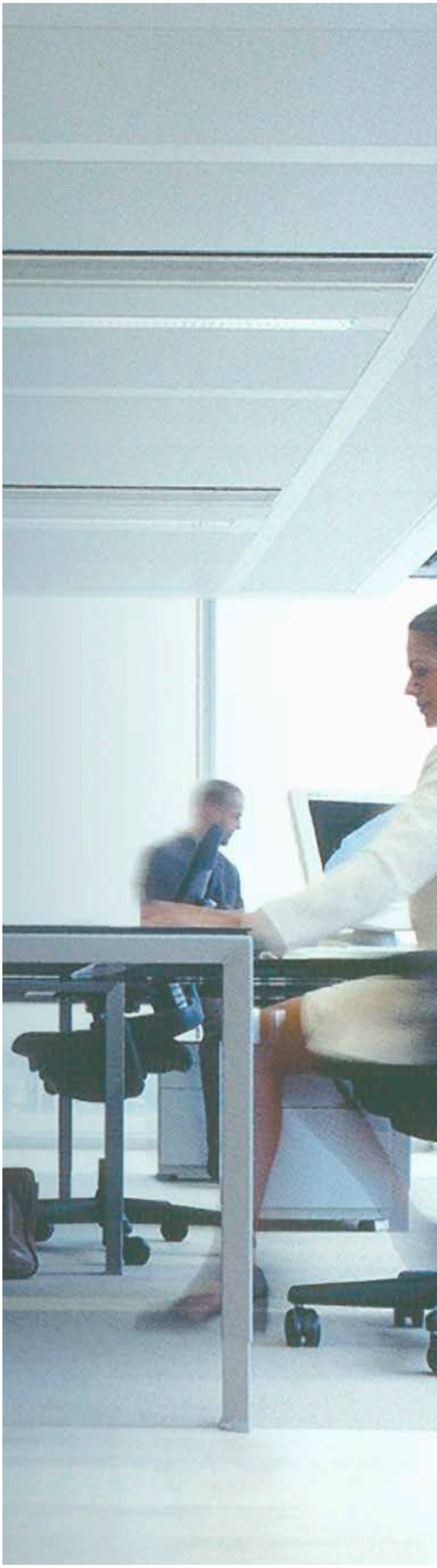
AUTOMATIC FIREFIGHTING
SYSTEMS IN

OFFICES

SIEX
WATER MIST SYSTEM



Water mist protection equipment can be installed for complete security of the entire building

Hazard type

Office buildings will always considered OCCUPIED AREAS, requiring a completely safe fire protection for personnel.

New WATER MIST technologies ensure safe and effective protection and allow better asset protection than any other alternative.

The rooms use for work are as varied as the trades and number of workers who perform their work in them.

So an office could be either a room with only one workstation or an entire building. For this reason, this type of hazards can include other hazards such as:

- Workstations.
- Archives.
- Public areas.
- Transformers.
- Machinery rooms.
- Cleaning rooms.
- DPCs

Each office should be studied according to its type and the various hazards associated with its principal use, guaranteeing the protection of all.

The differentiation and classification of each office should be considered as one of the top priorities in their design. It should be borne in mind that the total or partial modification of office space may result in the modification of the extinguishing system, so any change in layout or use requires new fire protection analysis.

Sources of fire

The main causes of fire which can occur in this sort of installation are:

Internal factors:

- Sparks caused by switches.
- Short-circuits
- Overloading
- Static electricity.

External factors:

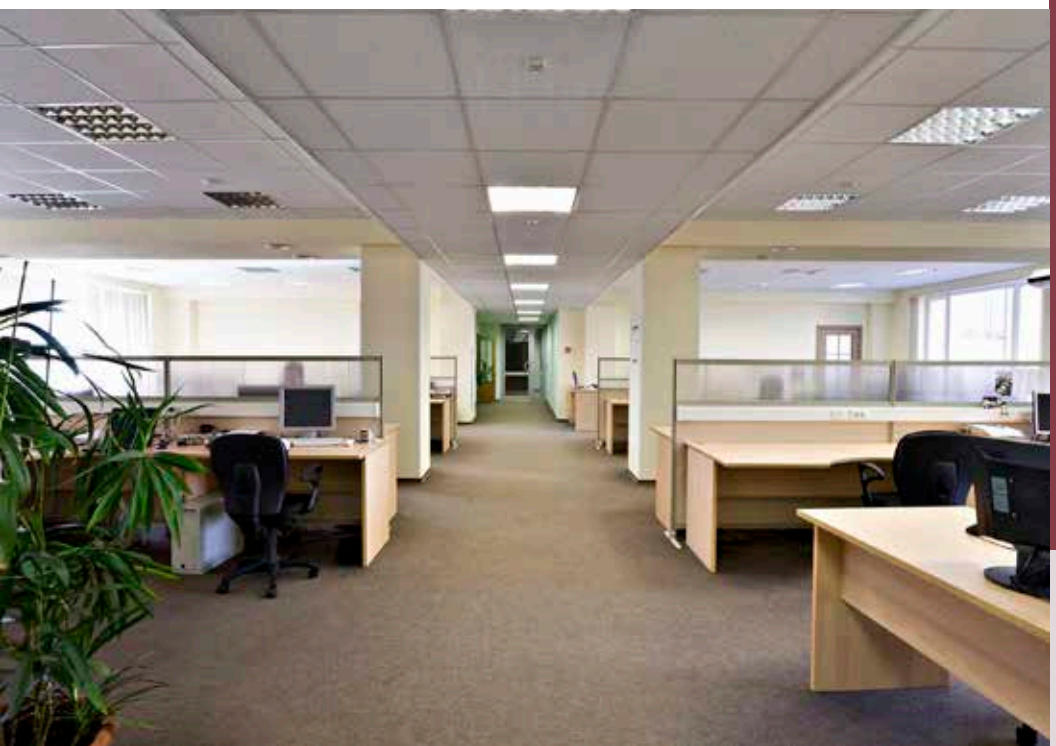
- Arson.
- Smokers.
- Maintenance and refurbishing operations.

Protection

The protection must be looked at from three different perspectives:

1. Protection of people inside the hazard, preventing the spread of fire and/or suppressing it.
2. Improved visibility in escape routes.
3. Protection of the building and structure by cooling.

To meet these requirements, the extinguishing agent must be clean and non-toxic. It must also provide rapid response after activation and must not be electrically conductive. The SIEX WATER MIST SYSTEM meets all these requirements.



CONSEQUENCES OF FIRE

This type of hazard generates great quantities of heat which implies certain consequences:

HIGH COST IN HUMAN LIVES AND INJURIES.

HIGH COST IN DAMAGE TO PROPERTY.

HIGH COST OF LOST PRODUCTION AND INFORMATION.

HIGH COST OF LOST PRODUCTIVITY UNTIL THE RESUMPTION OF BUSINESS.

Fire prevention focuses on the removal of one of these factors: fuel, oxidizer (oxygen) and activation energy.

Possible scenarios

The aforementioned areas in an office are exposed to a wide range of risks, depending on use and location. SIEX boasts a wide range of high-technology products designed for protecting these areas.

In general, and given that all these risks can be protected by the same extinguishing system, the use of water mist is recommended.

WORKPLACES

Here we can find low-scale paper and documentation storage, IT equipment, rubbish bins and miscellaneous office equipment and furniture.

The main causes of fire that may occur in this type of facility are: sparks due to switches, short circuits, overloads, static electricity, dirt or external elements that might cause flaming from overheating, etc. It must also be borne in mind that the vast majority have raised floors and false ceiling for electrical and data cables. These must be protected, since they are potential sources of fire with limited potential for visual inspection.

TECHNICAL AND SERVER ROOMS

These are strategic points in any organization. In them is stored all the information, one of the greatest assets of any company. In case of fire, losses are valued not only by the material value of the equipment, but are significantly greater when the chain reaction that occurs is taken into account: loss of stored often irrecoverable information; losses in productive time where normal company production is impossible due to data unavailability; and even losses incurred as a result of time spent on reacquiring lost information.

The main causes of fire that may occur in this type of facility are: sparks due to switches, short circuits, overloads, static electricity, dirt or external elements that might cause flaming from overheating, etc. Raised floors and false ceiling for electrical and data cables should also be taken into account. These must be protected, since they are potential sources of fire with limited potential for visual inspection and maintenance.

ARCHIVES AND WAREHOUSES

Archives, in general, are a hazard that pose no risk in and of themselves. However, there is one hazards where, if the documents stored are affected by a fire, the negative results are very numerous and significant in the short, medium and long term.
It must be borne in mind that in archives nowadays house not only documentation vital for business activity, but also digitzed files of the same. This loss causes delays in re-starting normal operations after a fire.

The fire load in this type of location is inherently high, given the high concentration of combustible items such as paper (books, documents, etc.), cardboard and electrical components which may develop faults. Materials on shelves, ceilings, floors and other possible materials represent an additional fire load.

The most appropriate system will be selected based on the size of the hazard(s) to be protected, space available for storage, location of equipment, financial cost, piping installation, as well as various customer needs.

TRANSFORMERS

These premises deserve special protection in any building since they are special hazards which need to be isolated by means of building elements with a minimum fire resistance of 60 minutes. These areas tend to house combustible oils, liquids and gases that are highly flammable with fast-spreading flames.

They can be protected by water mist systems, which, as noted above, are compatible with electrical and flammable equipment and therefore suitable for high-risk areas.




MACHINERY ROOMS

These are another area where protection is recommended. Fires can be started by electrical faults, short-circuits, etc. or improper use of certain equipment.

CLEANING ROOMS

These rooms house significant fire points, such as highly flammable cleaning products and various types of fabrics, usually in storage.

COMMON SPACES: CORRIDORS, RECEPTION AREA, WAITING ROOMS, MEETING ROOMS

There is a critical problem with the time available to detect fire and evacuate these areas because people do not have to be necessarily familiar with evacuation routes or the operation of extinguishing systems.

The solution is as simple as installing a water mist system. This system will provide a very great likelihood of fires being controlled at an early stage without additional risks for people.

This technology is used for many applications and is compatible with electrical and combustible equipment and therefore suitable for high-risk areas, not just public spaces.

Solution

SIEX WATER MIST SYSTEM

SIEX™ WATER MIST IS THE ULTIMATE PROTECTION TO PROTECT THE ENTIRE BUILDING/FACILITY USING A SINGLE SYSTEM. THIS BREAKTHROUGH TECHNOLOGY PROTECTS BOTH PERSONNEL AND PROPERTY AS WELL AS THE STRUCTURE, PREVENTING ITS COLLAPSE.

Water has been known as an extinguishing agent since man has been exposed to fire. Of all the substances found in nature, water has the highest specific heat, after hydrogen and helium. The latent heat of vaporization is the highest of all liquids, making it an excellent firefighting medium.

It is the nozzles which are the technological heart of this system and on which its effectiveness depends. Our company currently boasts a large number of nozzles with proven effectiveness for various hazards.

RELEASE METHOD

COOLING:
Water droplets come into contact with the flame or burning object and absorb much of the heat they emit. This eliminates one of the three elements necessary for there to be a fire.

SUFFOCATION:
Liquid water increases its volume by a factor of about 1,600 as it vaporizes. This change of state can be produced locally by the direct effect of the flame and throughout the room if there is a high enough temperature. The existence of this water vapour reduces the oxygen in contact with the flame, thus eliminating a second element necessary for the fire to exist.

ATTENUATION:
The mist generated in the enclosure absorbs much of the heat radiated by the flames, thus protecting near-by objects.

OBJECTIVES

FIRE CONTROL: TO LIMIT THE GROWTH AND SPREAD OF FIRE.

COOLING: the high specific surface area of the droplet means the efficiency of heat absorption from the fire is greater than in other systems; this results in a considerable temperature drop in the gases and the air around the fire.

SUFFOCATION: the transformation of water into steam makes its volume increase about 1,600 times, which results in a reduction in the oxygen concentration around the fire, thus controlling the fire in the car park.

FUEL SEPARATION: droplets resting on the surface of the fuel prevent heat reaching it and therefore the fire from spreading to other vehicles.

FIRE BARRIER: water droplets suspended in the atmosphere absorb heat in the form of radiation preventing, as in the previous case, the fire from spreading to other areas.

FIRE SUPPRESSION: TO REDUCE THE HEAT RELEASE RATE OF FIRE.

SYSTEMS

Depending on the water storage:

- HIGH PRESSURE PUMPSETS: Suitable for high-risk and large hazards.
- CYLINDER BANK: For small hazards.

Depending on the hazards that are protected by the same water supply:

- WITHOUT SELECTOR VALVES
- WITH SELECTOR VALVES

Depending on the pipework used:

- DRY PIPE SYSTEMS: OPEN NOZZLES. NON-PRESSURIZED PIPEWORK.
- PRE-ACTION: Wet pipe system pressurized up to the valve. From the selector valve onwards, the piping is dry with a closed nozzle. This system allows double safety for the hazard, also avoiding possible damage due to accidental releases, including drips.

PROPERTIES:

ENVIRONMENTALLY FRIENDLY: Currently water is a scarce resource and thus its use is optimized. Currently water is a scarce resource and thus its use is optimized.

MINIMAL SPACE REQUIREMENT: The size of the pumpsets and water tanks installed in the tunnels is lower than with sprinkler systems, thanks to significant savings in the water used. This reduces the space required in the pump room.

RAPID TEMPERATURE DROP IN THE HAZARD: The high specific surface area of the water droplet rapidly reduces the temperature and maintains it over time. Thus damage to people and the structure is avoided, and the fire is prevented from spreading to other areas.

HIGH SUPPRESSION AND CONTROL CAPABILITY: The specific surface of water discharged is far superior to sprinkler systems and therefore the heat absorbed is much greater for the same quantity of water.

MINIMUM NUMBER OF NOZZLES: Optimizing the design parameters of the nozzles maximizes their coverage compared to other systems and therefore reduces the number of these that need to be installed.

SMALLER PIPE SIZES REQUIRED: Smaller pipe sizes: SIEX™ WATER MIST SYSTEMS use 90% less water than traditional systems.

LONG PIPE RUNS: The high pressure at which the water is pumped allows piping networks with longer pipe runs to be used, such that a single pump room can supply water to the entire building.

EASY TO INSTALL: The small pipe sizes and type of accessories used imply a very simple pipework installation.

THE INSTALLED SYSTEM IS LIGHT. The loads to be borne are reduced and therefore the installation cost drops. The handling of installation components translates into shorter installation times compared to other systems.

LESS DAMAGE FROM PARTICLES AND SMOKE: The discharge of water mist has the effect of scrubbing smoke and particles produced by the fire, which facilitates evacuation and the work of fire fighters responsible for extinguishing the fire.

REDUCED WATER DAMAGE: Unlike traditional sprinkler systems, where sometimes damage caused by water discharged is greater than fire damage, the small droplet size and the low flow of the SIEX™ WATER MIST SYSTEM ensures minimal damages.

LOW-COST MAINTENANCE

May be used in LOCAL APPLICATION.

Our commitment

CHOICE OF SYSTEMS

SIEX has the widest range of products and systems to suit different needs, both as regards pressures and extinguishing agents.

COMPETITIVE PRICE

Optimizing all of our processes make us more and more competitive worldwide.

SPECIALIZED ENGINEERING

Our highly qualified staff ensure the best service for customers both as regards technical advice on the choice of system, and solving any problems that might arise after installation. Backed up by our extensive experience and a track record of successful projects.

INNOVATION

At the forefront of innovation in every product we develop, ensuring the technical features offered.

QUALITY GUARANTEE

All products meet the highest quality requirements and internationally recognised official approvals.

OTHER SPECIAL HAZARDS PROTECTING BY SIEX:

SERVICE STATIONS
ARCHIVES AND LIBRARIES
DPCs
PAINT SPRAY BOOTHS
ELECTRICAL PANELS
INDUSTRIAL KITCHEN
TURBINES AND GENERATORS
ROAD TUNNELS
NATURAL GAS PLANTS
CLEAN ROOMS
CABLE TUNNELS
TELECOMMUNICATION CENTRES
HOTELS
HOSPITALS
EDUCATIONAL ESTABLISHMENTS
TRAIN AND UNDERGROUND STATIONS
TRAINS
TRANSFORMERS
OFFSHORE PLATFORMS
SOLAR THERMAL PLANTS
MACHINE TOOLS
PRINTING INDUSTRY
HISTORIC BUILDINGS
ROBOTIC PARKINGS
WIND TURBINES
STEEL INDUSTRY
BANKS
OFFICES
LARGE VEHICLES
CONVEYOR BELTS
GAS PUMPS
OIL & GAS
TIMBER INDUSTRY

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