

All fired up!

FIRES CAUSE LOSS OF LIFE, DAMAGE PROPERTY AND HARM THE ENVIRONMENT. HVAC FIRE PROTECTION ISSUES INSIDE BUILDINGS ARE, THEREFORE, IMPORTANT. NOW, THANKS TO A POSITIVE FIRE CODE AND A REGULATORY FRAMEWORK IN PLACE, THE UAE IS BETTER PREPARED TO COMBAT THE MENACE, WRITES ALEXANDRE BENOIT.

FIRES IN THE UAE

Fire hazards within buildings are still a global concern, especially in the UAE, where more than 2,000 fires occur annually. The fires are caused essentially by accidental human factors (60%) and technical failures (40%). They result in deaths, injuries and/or damages, which form a threat to residents and tourists in the UAE. For this reason, preventive safety against fire hazards and disasters has become a major strategic objective in the Dubai Civil Defence Strategic Plan 2009-2015.

NEED FOR FIRE PROTECTION – PREVENTIVE SAFETY

Safety is a key subject that needs to be addressed, not only by the UAE authorities (civil defence), but also by developers, consultants and contractors, in order to ensure a maximum level of safety for all buildings presently under construction or already built.

If sustainability can be considered as a positive trend taking shape slowly in the UAE to promote efficient green buildings (via effective water and waste management, energy consumption ratings and indoor environmental quality), quality and safety need to be further prioritised by the different construction bodies in the UAE. The quality and safety standards

of building construction are still quite low in the UAE. This is due to various factors, such as cost reduction, lack of regulations, minimum specification requirements by consultants, poor labour skills, and disregard towards specifications by actual contractors. As a direct result, the UAE has faced structural collapses affecting some buildings or car parks under construction. But if these collapses constitute tangible and visible proof of bad quality of structural construction, a low level of quality and safety is also affecting the thermal insulation, the HVAC systems, and, indeed, the fire-protection systems, which are really critical, in the event of a fire.

WHAT ACTUALLY IS A FIRE?

Fire is the combination of flame and smoke caused by the combustion of gases occurring at high temperatures. The flame is the visible part of the fire which attacks and burns materials. Smoke is made of combustion gases. The resulting toxic and opaque fumes prevent people from breathing and affect the visibility required to escape a building. This creates panic. At high temperatures, the large volume of smoke generated by fire creates high pressures with convection movement. As a direct result of this, fire can spread quickly and unpredictably throughout the surrounding areas, if there is a lack of efficient compartmentation

and if no smoke-management system is in place.

To effectively deal with the possible dangers caused by fire, the European Committee has developed different standards based on the following nomenclature for “the resistance to fire performance of construction products, construction works” (for example, fire dampers, smoke dampers and ventilation ducts in HVAC):

- E: Integrity
- I: Insulation (no heat transfer)
- S: Smoke leakage (no smoke leakage)

VICTIMS – PEOPLE, BUILDINGS AND THE ENVIRONMENT

The first issue is that fire can pose a real danger for a country by endangering its people (family, children, people with disabilities, tourists and fire fighters), with deaths and injuries being often the result. As life is priceless, there should be no cost issues in bringing the best level of safety to a building. The key danger for people caught in a fire comes mainly from smoke inhalation, which can be managed efficiently through proper compartmentation of structural areas, plus an efficient smoke-management system.

The second issue resulting from a fire can be the destruction of a building or parts of a building, if effective compartmentalisation has not been implemented. The ➤



Figure 1: A winning triptych, ensuring a valuable and efficient building

