ADVANTAGES OF INTEGRATING THE FIRE SYSTEM WITH BMS

There are many reasons for integrating fire alarm systems with building automation and control systems including smoke control, unified access to building information, easier maintenance, sharing sensor data, location information of people during an emergency, and providing infrastructure for new technology to improve performance and safety.

Fire detection systems have been integrated with door locks and with HVAC fan and damper controls for smoke management for many years and these systems have relied on relays controlled by the fire alarm system to override normal operation. This kind of integration has primarily involved constant-volume HVAC systems and required only on/off control of fans and dampers to be moved to fully open or fully closed positions.

Modern HVAC systems are far more complex, variable air volume systems are used to reduce energy consumption and these systems require sophisticated control algorithms to operate a continuously variable-speed fan or inlet guide vanes that control the static pressure in the supply air duct. Variable air volume boxes control the airflow from the supply duct into individual rooms by modulating dampers. Control algorithms for these systems are complicated and require interlocks and safeties to prevent overstressing ductwork if dampers do not open when fans are turned on. Smoke management is much more complicated with these systems and outside of the capability of most fire alarm systems. This presents an opportunity for the fire alarm system to command the HVAC control system to enter a smoke control mode and let the HVAC controllers manage the equipment.

New sensors are being developed that can recognize various contaminants in the air that can represent a fire signature or a hazardous contaminant that poses a life safety threat. In an integrated system, these sensors could be used by the HVAC control system to control ventilation rates with no adverse impact on their life safety functions.

Multiple uses for the same information will make it more cost-effective to implement new sensor technology. In some buildings, access control systems monitor the location of building occupants. Providing access to this information to the life safety systems could be very helpful in an emergency. Emergency response personnel would know where to look for occupants who need to be evacuated. They could also reduce the risk to themselves by avoiding dangerous areas where no people are present.

Imagine a new generation of smart fire alarm panels that can make use of sensor data from an integrated system to calculate heat release rates in a fire. Using this information, a fire model in the panel can predict how the fire will grow and spread. Emergency response personnel can use these predictions to plan a strategy for fighting the fire. It could even be transmitted by the building systems to fire stations or fire trucks so that planning can begin before emergency personnel reach the site. This could significantly improve response time, saving lives and reducing property loss. For all of these reasons and probably others, integrating fire alarm systems with other building systems makes a lot of sense. The technology is already being driven in that direction by market forces.

Honeywell Enterprise Buildings Integrator (EBI) - Life Safety Manager allows monitoring and control of fire alarm systems for fire protection and smoke control. The operator is provided with continuous information about the building's fire protection systems and can actuate a fire alarm or building evacuation from Station Scheduling.
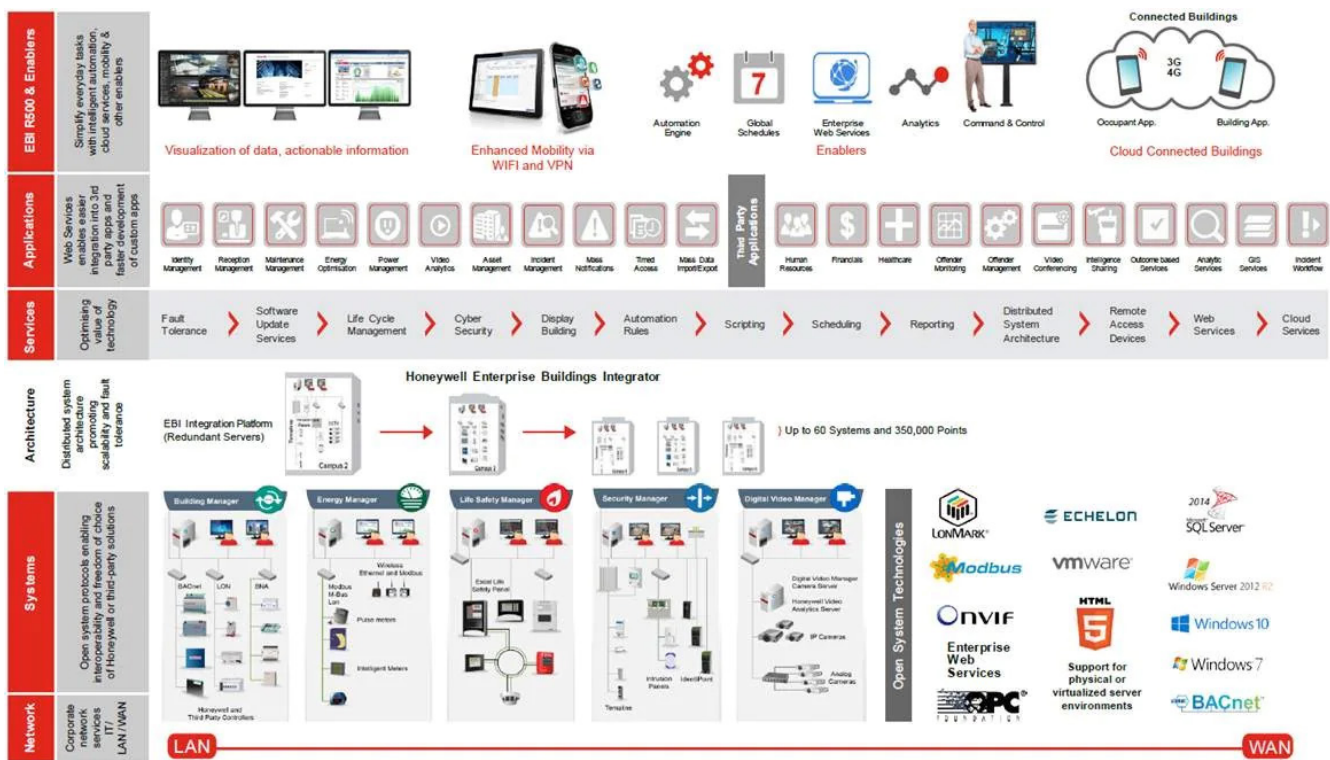
NOTIFIER ONYXTM AFP-3030 is fully integrated with Honeywell EBI – Life Safety Manager to enable effective monitoring and control of fire alarm systems for fire protection and smoke controls.

Click here to learn more about OnyxTM AFP-3030

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www.notifier.com.au

Notifier by Honeywell

9 Columbia Way
Baulkham Hills
NSW 2153
Tel: 1300 368 755

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