SYDNEY EXHIBITION CENTER

(HOMEBUSH BAY)

Playing host to the official Basketball, Badminton and Volleyball competitions of the Sydney 2000 Olympic Games this multi-purpose venue was completed in 1998 as part of the Sydney Showgrounds Complex.

Managed by the Royal Agricultural Society of NSW the centre also hosts part of the annual Sydney Royal Easter Show

Offering configurations of either one uninterrupted space of 14,400 m^2 or 3 x 4,800 m^2 individual areas, plus a domed area of 7,200 m^2 and with a maximum ceiling height of 22 m in the exhibition halls and 42 m in the dome, there are very few functions, from small groups to 18,000 people, which cannot be catered for.

Why VESDA?

The original requirements for the fire system for this centre were to install hydrant monitors around the internal perimeter of each building. While addressing the prescribed Industry Code requirements, this was a very expensive and space restricting option for a fire system. Heyday Group – Fire Technologies suggested a 'performance-based' design which required very early warning of a potential fire event to facilitate the evacuation of patrons in a timely and orderly manner.

The primary requirement of the design criteria was to detect smoke from any sampling pipe within a maximum of 30 seconds.

Detection of smoke in large open spaces is difficult because of the dilution that occurs. As smoke rises from ground level, stratification can occur and prevent the smoke from reaching the ceiling.

The VESDA Advantage

As the world's leading aspirating smoke detection system – VESDA provides the earliest possible warning of a potential fire event by detecting smoke particles at the incipient (first) stage of fire (Refer to Fire Growth Curve).

VESDA's ability to provide multiple alarm trigger points between 0.005% and 20% obscuration makes it the ideal detection system to give the early warning required to provide time for evacuation.

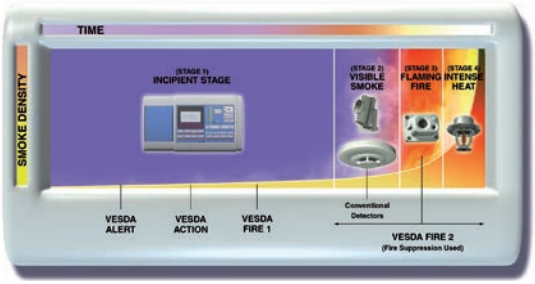

Figure 1: Progression of Fire Growth over Time

VESDA provides proactive detection in this huge volumetric area by actively sampling the air from the protected zone via multiple sampling holes in the ceiling mounted pipe network. The sample air is then transported to a centrally located, calibrated laser based detector for analysis.

Smoke changes can be reliably detected by VESDA's laser based technology at a minimum level of 0.00075% obscuration per metre – a level invisible to the human eye. VESDA's advanced sensing technology allows individually programmable alarm thresholds to activate at specific smoke levels in any environment. This allows the user to adapt the system to clean, dusty, dirty or smoky environments.

VESDA's filtration technology enables it to be used in multi purpose venues where some events will create a dusty/dirty environment. This dust has caused conventional type detectors to false alarm.

The advanced learning technology in the software and the ability to program time delays at each of the alarm levels minimises the occurrence of false/unwanted alarms in these types of applications.

By using a network of pipes to transport the air sample, the design of any VESDA system is extremely flexible, allows for easy maintenance and will be computer-modelled prior to installation.

In addition, VESDA offers global distribution and support networks, and the flexibility to interface with any existing fire systems.

Figure 2: VESDA Systems installed by Heyday Group - Fire Technologies