

## **EXTENSIVE R&D EXTENDS THE USE OF EVAPORATIVE COOLING IN DATA CENTRES – SMOKE IS NO LONGER A CONCERN!!**

During 2018 Celsius undertook extensive Research and Development works to design a system of filters, damper arrangements and smoke detection systems to allow Evaporative cooling to be used even when there were external fires (and therefore smoke) in the vicinity of the Data centre.



Whilst we have never had any Celsius EcoCooling systems trigger any gas suppression systems, it was always seen as potential headache. Therefore to overcome any objections we have invested heavily and carried out extensive R&D on our test rig.

The purpose was to design a system using a VESDA (Very Early Smoke Detection Apparatus) sensing system that actually 'sniffs' the external air for smoke or fumes and then if detected in sufficient quantities this will trigger the use of a HEPA filter system.

By altering a series of motorised dampers diverting the air path to effectively scrub the entering airstream. Removing particulate as small as 0.05microns, the internal VESDA system is then set up so as not to trigger the suppression gas until the concentration reached a dangerous level where the HEPA filters were not coping with the levels of smoke being drawn into the area.



This 'alarm' is logged and reported if desired. When the smoke has passed and the VESDA system no longer detects it, the dampers alter once more to divert the airpath no longer through the HEPA filters.

This maximises the life of the HEPA filters and minimises the running costs, as the fans draw far more power when overcoming the resistance of the HEPA filter. Ultimately this R&D has given us the confidence to design an Evaporative cooling system for your Data Centre that can be used regardless of the external conditions, ensuring you save money on running costs at all times.