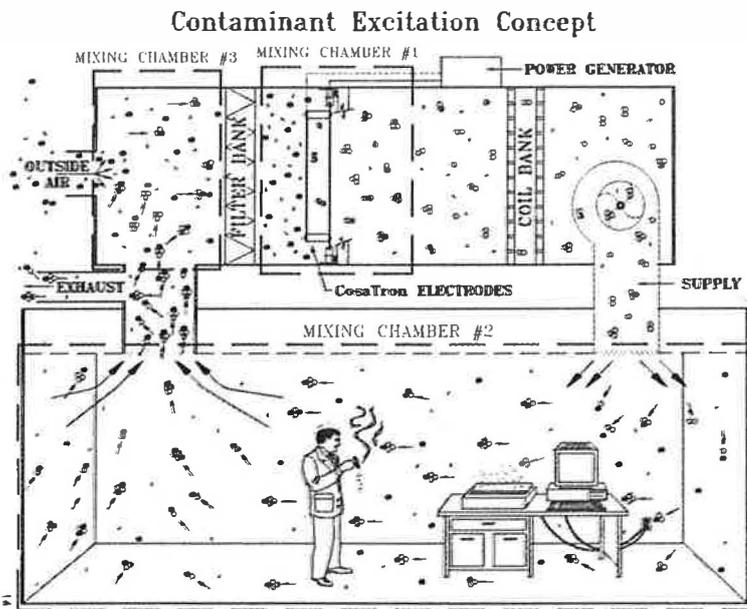


Playing the field

A US company is using electric fields to remove airborne contaminants. Ewen Rose reports



contaminants, increasing adsorption (gases held on the surface of a liquid or solid) and absorption (to take in and make part of the existing liquid or solid).

Mr McIvor claims that the system will reduce contaminant deposition by approximately 85% and airborne particle counts by as much as 50%.

So how does it make all this happen? By dividing the ventilated area into three areas, one can see how the particles are collected and removed in stages (see diagram).

The first area is the section of duct from the prefilter to the coils where the CossaTron electrodes are installed. The second area is the occupied room, and the third the mixing box.

Air carrying submicron particles and other contaminants leaves the filter and passes through the CossaTron electrodes where the excitation field is being generated. These particles and other contaminants will be influenced by CossaTron's electrical field, accelerating and changing direction, colliding and sticking together.

When these larger particles enter the conditioned space, they behave like a snowball rolling down a hill sweeping up submicron particles, absorbing and adsorbing gases in the room as they grow larger and larger, while being carried by the air currents to the returns or exhausts.

Larger particles have a greater cross sectional area and so are carried along more readily by air currents. These particles are then either exhausted or enter the third area, the mixing box, and the snowball effect continues. The larger particles collide with the contaminants in the outside air and continue to absorb and adsorb various contaminants. They then pass through the filters where the large particles and their associated gases are trapped in the filters - and the whole thing starts all over again.

◆ CossaTron is available in the UK through Denco Air Conditioning.

Enquiry no 204

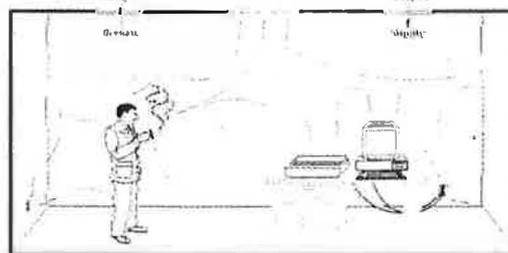
The revision of ASHRAE Standard 62 for indoor air quality is swallowing up huge amounts of the society's time and the controversy continues (see page 25). However, one of the standard's leading experts, Art McIvor, who will move on next month to take over as chairman of the ASHRAE Standards Committee, has a company to run as well.

As president of CRS Industries in Tampa, Florida he is responsible for the air purification technology known as CossaTron and last month he visited the UK to explain how a system, which is not a filter or an ioniser, removes airborne contaminants from the occupied space.

The CossaTron unit is installed alongside the filters and produces high voltage and high frequency electric fields to control the behaviour of the sub-micron particles which are often blamed for respiratory infections and the alarming growth in the number of people suffering from allergies.

Mr McIvor estimates that there are over 19 million sub-micron size respirable contaminants left in most rooms despite the efforts of high efficiency filters. The CossaTron encourages these particles to bind together in the space, coagulating into larger particles so that the filters can collect them more easily.

Electrical Forces



The Distribution of the Ever-Present Electrical Field Influences Fine Particle Movement, Often Driving Them to Surfaces, Objects and People.

"All airborne particles carry some element of electrical charge," said Mr McIvor. "It is the natural electrical field in the room which holds them there and the ventilation air can only do so much to move them out."

"Very tiny particles are difficult to remove without pushing large amounts of air through the space," he said. "If they stick together creating larger particles, you do not have to increase air velocity to remove them, and you make your existing filters more efficient."

The electrical fields create a particulate excitation field within the plenum that causes rapid particle collisions. It is also designed to increase the interaction of particulate, gaseous, and liquid