



January 10, 2011

*VITEC Arabia signs consultancy agreement with Dynamic Energy & Water Solutions for marketing and project referral services in U.A.E. / Qatar*



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## **What is the VITEC Air Purification System (VAPS) ?**

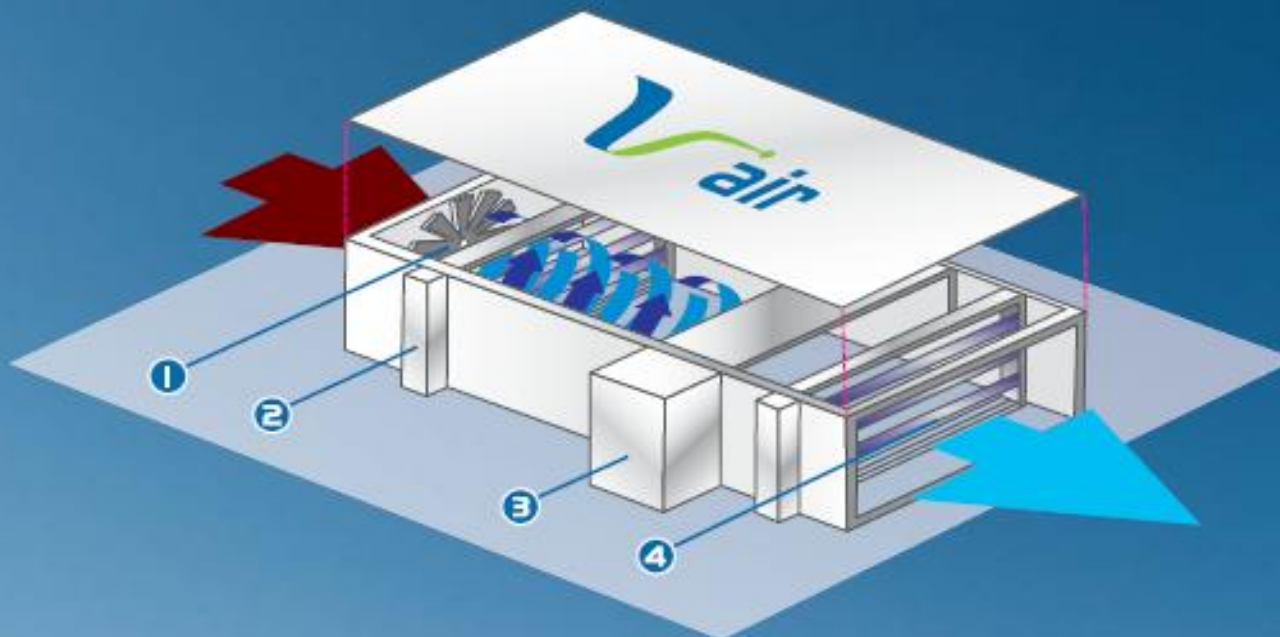
VITEC Arabia recently launched VITEC's first major innovative air-purification system in the Middle East & N. Africa. **VAPS** is designed to kill up to 99.997% of airborne pathogens, eliminate noxious odors, and enable safe re-circulation of improved-quality indoor air.

Built within **VAPS** is VITEC's patented *Antimicrobial Nanotechnology*, a unique protective coating, which when applied to a matrix, gives the treated surface an exceptional, non-leaching, long-lasting, germicidal property capable of killing airborne micro-organisms on contact.

The unit can be easily integrated in any part of the building; serves numerous solutions for air treatment and power conservation; thus making it economical (cost-efficient) and environmentally friendly.



## VAPS 4-Stage Configuration - Air Purification Procedure



- 1 Air enters through a static direction grill which causes it to 'spin', optimising air flow both in the UV chamber and bio-matrix filter.
- 2 Air passes through a UV light chamber. This air is exposed to safe and contained ozone, resulting in the elimination of odours and significant reduction of organic based contaminants.

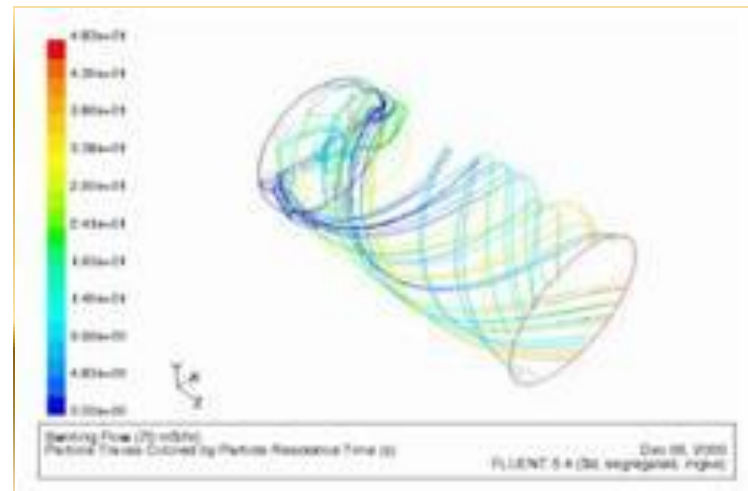
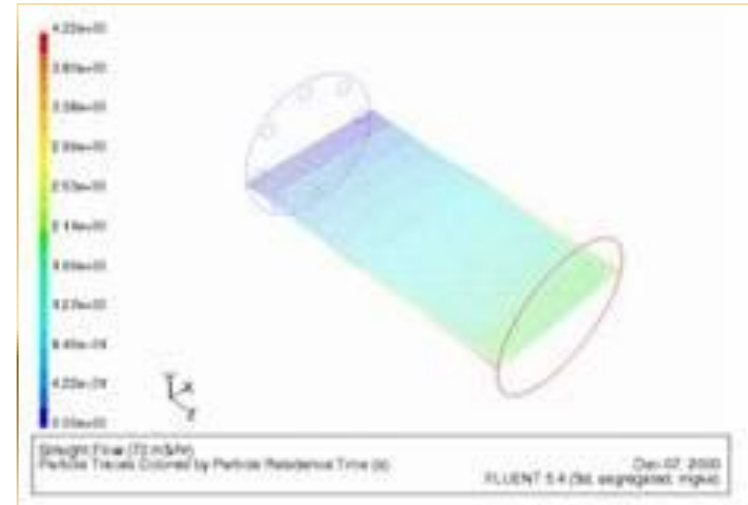
- 3 Air passes through a loose bio-matrix filter, which is treated with Vitec's Antimicrobial Nanotechnology that is proven to permanently inhibit harmful bacteria - causing microbes on contact with the filter.
- 4 The air finally passes through a second UV light chamber. This UV chamber has two functions: the destruction of any surviving microbes that have never made it through the bio-matrix filter; neutralisation of any remaining ozone.



## First Stage: Air within the air cleaning unit

As air enters the unit, it passes over a 'turbulator' or similar device which acts to "spin" the air.

This serves two purposes, increases the dwell time of the particles of air in each UV chamber, thereby ensuring the air achieves maximum dosage of UV which oxidizes the odor forming compounds in the airflow, and maximizes the chances of all the air particles coming into contact with the treated filter.





## **Second Stage: Safe Ozone chamber for odor removal and Biological kill**

The air is exposed to safely generated and contained ozone. In this chamber are series of special UV tubes producing UV light at a frequency of 184nm. This UV breaks down the oxygen into single oxygen atoms which form a bond with normal oxygen molecules (O<sub>2</sub>) to form ozone (O<sub>3</sub>). This process is known as "UV enhanced oxidation", promoting the production of ozone and hydroxyl radicals. Ozone and hydroxyl radicals are highly reactive free radicals which attack the odorous molecules in the chamber, breaking them down into harmless, odorless compounds. The result is the destruction of odors by oxidation of the odor-causing compounds before passing into the next chamber.

## **Third Stage: Antimicrobial Nanotechnology Matrix**

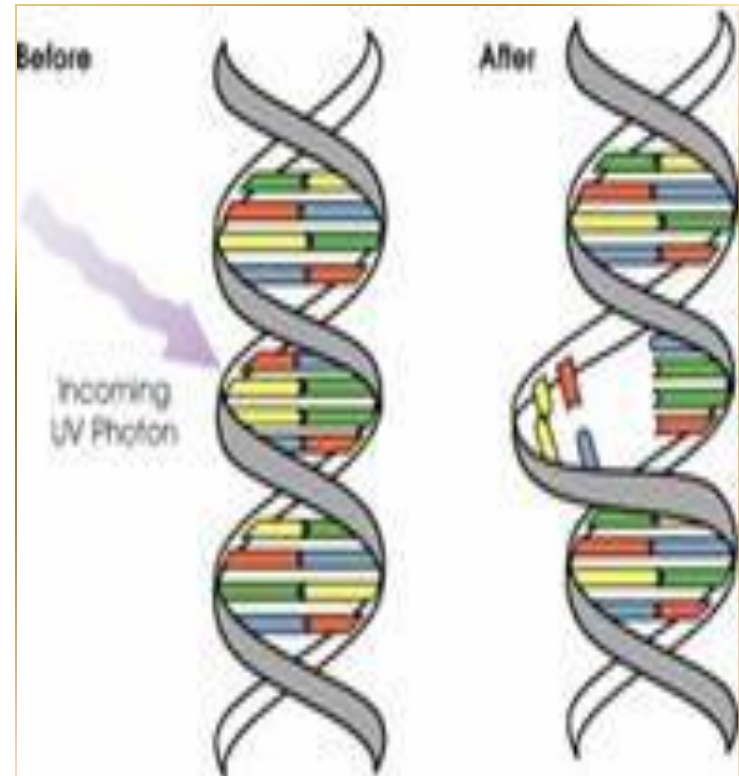
The air passes through a loose bio-matrix coated with Vitec's Antimicrobial Nanotechnology solution. This nanotechnology is a unique environmentally friendly antimicrobial that uses charged elements to attract microbes and then physically ruptures their cell membranes and lipid envelopes, and then electrocutes the cell of the micro-organisms using a biostatic discharge rendering them harmless. The matrix attracts only living particles. Non-living matter passes through the system bouncing off the "intelligent" antimicrobial surface leaving the matrix free from clogging. Often, viruses travel in lumps of living matter and "hide inside" them similar to a Trojan horse. The matrix kills the living matter and separates the much smaller viruses. The Vitec matrix eliminates the vast majority of the micro-organisms before the air continues on its journey into the third chamber



## **Fourth Stage: Ozone removal and Biological kill**

The turbulating air now passes through a high-intensity UV light chamber which contains a series of lamps producing UV light at a frequency of 254nm. This UV chamber has a dual function:

- Firstly, the destruction of any surviving single microbes by the disruption of their DNA/RNA.
- Secondly, the neutralization of any remaining ozone (O<sub>3</sub>) into harmless oxygen molecules (O<sub>2</sub>) which can be safely returned to the atmosphere. This ensures that no ozone is discharged to atmosphere.





## What are the Key Benefits of VAPS ?

- ✓ Complete protection of HVAC system in the building and hence preventing costly maintenance.
- ✓ Protection of interior of the building from mould growth.
- ✓ Noticeable reduction in energy bills.
- ✓ LEED / ESTIDAMA or Green Building eligibility for points at low expense.
- ✓ Prevention of bad odors circulating in the building, especially in prestigious buildings, offices, hotels, etc.
- ✓ Very high Indoor Air Quality (IAQ), which can be used as a sales and marketing pitch mainly for hotel operators and other commercial tenants.
- ✓ Low-energy alternative to HEPA filters where clean air is needed, however with the efficacy of the ULPA filter.
- ✓ Lowering initial CAPEX on HVAC units for buildings.

*The VAPS product range provides two main **cost advantages**:*

- *The pressure drop as opposed to other filtration units (i.e., HEPA) is negligible, thereby reducing the costs as the fan size needed in the AHU can be reduced.*
- *The heating and cooling costs can be reduced, as less fresh air will need to be drawn into the HVAC system as the re-circulated air will be of a higher quality.*