



The panel included representatives from Aled, Evapcool and LG Electronics.

Air of change

Three experts from different strands of the HVAC industry discuss how poor design and education are preventing end users from maximising their systems

How have recently introduced green building regulations affected your operations?

Dharmesh Sawant: Before the introduction of the JAFZA EHS regulations, it was difficult to promote a high COP machine. Contractors are always looking to reduce capital costs, rather than operating costs and for that reason, tenants today suffer.

LEED certifications were implemented to meet EHS requirements and this helped us promote green solutions; that was when operating costs and energy modelling began.

Today, Abu Dhabi's Estidama system is taking much bigger steps and is much faster than EHS, and we have seen an increase in enquiries and actual sales for products which help achieve the Pearl Ratings. The paradigm change has happened and this year sales have increased 150-200%. We have seen even the consultants taking keen interest in her regulations right from the beginnings of the design chain.

Rob Gainley: We have seen exactly the same; 100% growth for the last five years, driven purely by regulations.

Alexandre Benoit: Some international consultants already know the regulations from Europe and they are very keen to go with new solutions, but some consultants are still trying to go with what was done before.

RG: I'm starting to see that particular group disappear; I've been here 20 years and I'm starting to see the people who look for profitability over sustainability being replaced at a phenomenal rate.

DS: Even if local consultants want to go back to the old system, the regulations will stop them; the paradigm shift has happened.

AB: It's still not really starting, because Estidama is for new buildings and in Abu Dhabi there are not so many new buildings this year. It is existing buildings which require attention. Estidama will move fast, especially now consultants cannot get approval without meeting criteria but during the coming few years people will attempt to pass a one pearl rating just by using a single green solution.



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THE PANEL

Dharmesh Sawant
Senior manager for commercial air conditioning units, LG Electronics

Alexandre Benoit
Marketing manager, Aldes

Rob Gainley
General manager, Evapcool

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How can building design compromise or enhance systems and how does this affect your product development?

AB: Regulations have promoted our considerations about the orientation of buildings, shade, outdoor thermal comfort and so on, which all reduce the cooling load on a building. In addition, the glazing and number of windows is regulated, so it's a maximum of 30% glazing, and there is more care for the air-tightness of the building and insulation, with a maximum of 7.2 cubic metres in IECC.

When a building is properly insulated with no leakage we can work properly in collaboration with the AC manufacturers. This helps reduce the cooling load, meaning reducing energy consumption and noise levels, which provides better comfort for tenants.

Appliances don't need to be used all the time and there are many devices such as motion and CO₂ sensors which control the fans. These can switch systems on and off or increase fresh air when a room is in use.

But we face issues with consultants who aim for energy efficiency but do not consider indoor air quality (IAQ). They specify systems which recycle even polluted air when it should be

more of a complementary system, with air for the living space and dedicated extraction and insulation for bathrooms and kitchens.

DS: I really would like to urge all consultants to involve supplier and manufacturers who come at the end of the chain, at a design stage.

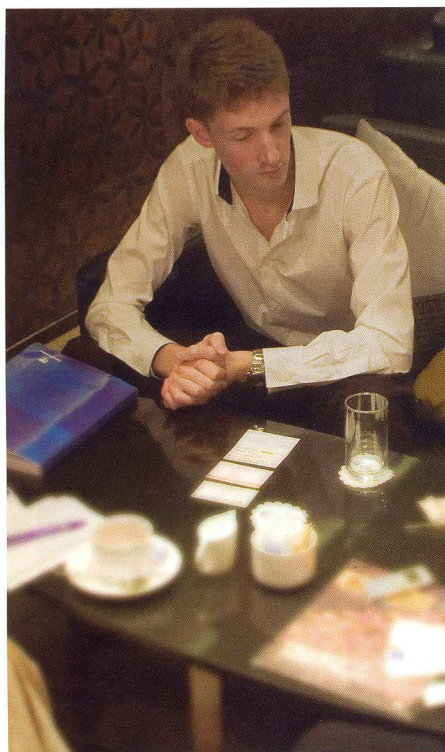
Manufacturers have many solutions; for example I may have 10 solutions for a problem,

but the consultant is only aware of one or two solutions they used in the past and so only these two solutions are ever utilised.

But we may have other solutions that are more cost effective and greener. Currently they involve us because regulations are such they have to, as they are pushed to get a better and better machine. There are consultants who think they know all the solutions in the market but the industry is changing so rapidly. There is constant improvement and evolution in the AC systems, which they may not be aware of. There has to be more communication.

Our VRF floor cooling system has a higher initial cost but looking at the total lifecycle cost it is more economical compared to traditional solutions and it is the greenest solution available on the market currently.

RG: You're right and a couple of years down the line, it is us who end up having to revisit the



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Rob Gainley, general manager, Evapcool.



Alexandre Benoit, marketing manager, Aldes.



Dharmesh Sawant, senior manager, LH Electronics.

project and fix the problem we advised would happen in the first place.

Literally we end up taking the flames, when if they had brought us in initially and done what we advised, it may have only cost only a couple of extra bucks to get the equipment or correct ventilation system. Because of design it is common to automatically narrow down the market options and not consider the full range of products on offer.

For example, you don't need insulation with evaporative cooling, it's wasted money so take that cash and buy a Lexus. The people who follow my advice are happy and I don't hear from them until years later when they invite me to a BBQ, rather than calling up to say 'this has gone wrong'.

What are the most common mistakes you see in the provision of systems in the region?

AB: the buildings and airflows are usually oversized, even for extraction and supplies we have sometimes 150 cubic metres in the bathrooms, when in France the regulation is much lower.

RG: They go with the larger air flows here because of the dust factor and contaminants in the air. The systems get clogged and they do not have the correct maintenance here to keep the systems clean. In the US and Europe right away somebody has already been programmed to service the equipment but they don't factor in that cost in this region.

AB: That is why I'm not thinking of having the exact same airflow as in Europe, but at least to do this would be sufficient rather than making it 10 times bigger. If you are just thinking about extraction you are not thinking about filtration.

DS: Normally we see there are certain things which need to be done just to save costs. For example for schools a fresh air system is required but some schools have only decorative splits so there is no fresh air. In many cases people pick up infection because the old air is being circulated over and over again. Ventilation is very important.

Secondly, especially for high-density public places such as mosques and schools there has to be a CO₂ sensor because whenever the CO₂ level goes up the fresh air should increase. The sensors don't cost much but for the sake of a few extra Dirhams an important point is eliminated. Estidama focuses on IAQ but why should we need regulation to do basic things?



Discussion explored how building design can compromise the functionality and systems.

AB: Sometimes in this market we see systems installed in front of the exhaust so that means you have a bypass directly from the air and tenants are not getting the correct air flow. People are considering design but they could avoid lots of energy use for nothing. In a small room you cannot avoid the bypass factor and Aldes has a specific product which can return and supply air, combined in the one diffuser.

It is like a cassette unit so it is supplying from the periphery and exiting from the middle. It can save 30% in energy.

DS: Here the mind set is that they don't want to see the unit, only the grill. This has to change and also ducts need to be cleaned more often.



fans called Microwatt. The electronics drive the motor speed through frequency variations, and this controls a constant pressure on the fan's airflow range.

This range meets the three key pillars for a building: quality, safety and sustainability, considering IAQ and an energy reduction of 60-75%. During product development we are trying to think of these three key criteria, so we have the range that will help indoor air quality because it is insulation. This product can be quite good for villas as well, where you can exit your villa faster.

We are partnering with MEP consultants and we will promote the products maybe with a technical seminar later in the year.

In France 70% of fans sold are Microwatt now before it was the normal type of fans.

DS: Our Multi V is a very high flow AC system. Before the fresh air handling unit used to be



How do your systems enhance IAQ?

B: We have different products which are interesting for this market. One market focus for Aldes is fire protection and last year we launched the ISONE fire damper, a European motorised smoke, fire and heat damper. It allows compartmentation for two hours with no smoke leakage thanks to an efficient intumescent sealing system. There is no heat transfer due to a refractory made in calcium silicate, ensuring there is no conduction, convection, or radiation, which could lead together to the pyrolysis of any material present in the ductwork and result in the pyrolysis of gases leading to flames and finally the spread of the fire. This fire damper is motorised ensuring an instantaneous operation via a fire alarm control panel connected to smoke detectors. Smoke kills people and we are promoting this with the authorities and consultants here. It's a good product to increase the safety of places like hospitals, substations and hotels. This year we launched a low energy consumption range of



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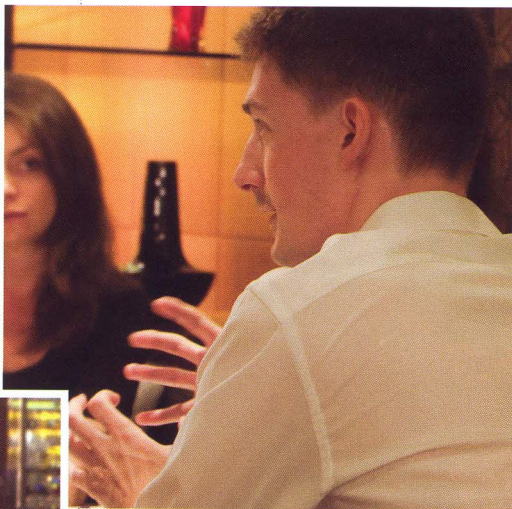
connected with only the condensing unit, with a constant speed compressor. But now we can connect this air handling unit with VRF and AC, with an inverted compressor. The advantage of this is in the morning it might be 35 and in the afternoon it goes as high as 50 so the daily range is very high in the Middle East and most of the energy consumed is because of the fresh air. The VRF reduces energy by almost 40% compared to a constant speed compressor.

We have this system and the capability of connecting the CO₂ sensors to the air handling unit. These controls are all built in so you just have to connect to the sensor and control kit.

Cost is a concern so we want to tell consultants there is a constant improvement happening; the only additional cost is if the CO₂ sensor so it's more affordable.

increasing demand for these systems.

We're currently in the development of a passive dehumidifier to fit on the back of our units. This will give AC type temperatures even on the coast. It has been in development for a couple of years and Exapcool will be bringing this to the market this coming year.



IAQ is about maintaining air quality sometimes when the tenant is not in the room but still wants to run the AC. So automatically with MultiV the temperature is adjusted by the sensor to a higher level, from 20° when the room is occupied to 30° when empty.

These are innovations stakeholders, consultants and clients should be aware of so they can utilise it and reduce operating costs in future.

RG: By the very nature of our units we wash everything down to five microns - nothing bigger than that gets through my machines because we're a single pass system.

We're running a two prong strategy for the future and one that excited me the most is moving into third world markets, where there is

It's nothing more than a salt filled filter that fits across the back of the machines and pulls out that humidity. By doing that there is plenty of heat to make the machines work.

We should be able to start marketing machines that achieve that 21° AC type cooling at costs in the range of 10% of traditional operating costs. We're also looking at about 30% of traditional AC installation costs.

In no way will this replace traditional air conditioning but it will enhance it, and we will be able to execute projects we couldn't before.

Traditional cooling methods, for the foreseeable future at least, are still going to involve the compressed gas with excellent ventilation, and if buildings are designed properly the only thing occupants will have to worry about is somebody coming and cleaning the filters.

DS: Now even our MultiV has plasma air filters with five levels of filtration.

It costs only a few Dirhams but sometimes stakeholders don't know this solution exists, so they don't specify it and the client is deprived of such filters. Also in the MultiV we have a small air handling unit, ceiling suspended and suitable for villas, which can be connected to the same condensing unit. ●

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ABOUT THE COMPANIES

LG ELECTRONICS DHARMESH SAWANT

Air conditioning is one of five divisions covered by LG Electronics in the Gulf. Dharmesh Sawant is responsible for the specification of systems in the design and concept stage, with separate teams dealing with contractors and the pre-tender projects. Sawant reports a strong change in attitudes following the introduction of regional green building codes and an increasing number of contractors seeking energy efficient solutions. LG provides a range of commercial and residential coolers and hold the record for the "greatest sales in appliances" in the world since 2000.

ALDES ALEXANDRE BENOIT

Trading as Euro Register until 2000, Aldes has been present in the Middle East for 20 years. For the last three years the company's head quarters in France has been working on new solutions for the Middle East market.

Main business activities in the region cover fire protection, smoke extraction, ventilation and air distribution, with European operations focussing on insulation. Additionally in Europe, Aldes reports a growing trend for heating, cooling and insulation powered by a "maturing" green building market.

EVAPCOOL ROB GAINLEY

Providing solutions for environments that cannot utilise AC systems or electrical loads are demanding, Evapcool's systems draw 16 amps of power and run on water, to eliminate the need for compressed gas, achieving temperatures of 26 inland. Primary applications for the systems include factories, workshops, warehouses, aircraft hangars, offshore oil platforms, outdoor restaurants and animal enclosures. The Dubai-based factory was established in 1995 and in addition to providing stand alone coolers, solutions are also available for pre-cooling conventional systems and power generation plants.