



11

*“Greetings for the season” ! May 2010 bring a lot of success to you !*

Thank you for your support in our progress. Your continuous encouragement has driven us to pioneer green and clean technologies to provide you with the best in Energy Recovery and Indoor Air Quality (IAQ).

Year 2009 has been a very happening year for **DRI**. We opened offices in the USA and Philippines and have also set up a new manufacturing facility at Manesar. With these new openings, **DRI** now has its presence in all the continents across the world to address the needs of our customers for the certified products, high quality, fast delivery requirements and technical hand holding.

**Green Building is on everyone's mind**

**Optimising energy performance**

**Green LOBBY**

RAJ UMRAOPATI RAY  
DECCAN CHRONICLE

**D**edicated Rotors International (DRI) is an active participant in the green building movement worldwide," says Varun Pahwa, Executive VP, DRI. There is no doubt that green technology development is the way forward in the future. Therefore it is but natural that DRI, which is the largest manufacturer of energy saving equipments in India — providing a complete line of desiccant-based products and systems that recover energy, increase ventilation and control humidity — be involved in energy recovery products and solutions that it provides to various companies around the world.

"The company's 'Green' products help to optimise the energy performance of air-conditioning systems resulting in the considerable reduction of installed tonnage,

reduction in utility bills, enhanced indoor air quality and productivity and reduced health risks," says Pahwa.

Apart from being a founding member of the Green Building Councils (GBC) in India and Vietnam, DRI is a member of the Green Building Councils in the USA, South Africa, Philippines and Australia. "The company is in the process of launching a new technology — DOAS (Dedicated Outdoor Air System) which is a unique combination of special rotors and a cooling coil. It would enable the delivery of conditioned fresh air all year round in a very energy efficient manner. With this new applied technology, the 'HVAC' industry will see a paradigm shift: is the understanding of indoor environment quality concerns," says Pahwa.



**Varun's focus on Green Building initiatives**  
**DRI: Energy Saving Solution for Commercial Buildings**

**Varun Pahwa, Executive Vice President, DRI on the Young Turks Transformer CNBC TV18**

**The Indian EXPRESS**  
7  
Sunday, December 13, 2009

**Varun does his bit for the green revolution**

**SHEVETA BHATTAR**

**T**HE light's been on for a while, but it's now that it has become an individual concern, with people waking up to the grave concerns of limited resources, ecological imbalance and the need to go green. Even if it is in the form of small endeavors. "From switching off lights when not required to changing layout of the house, they are now doing it all," says Varun Pahwa, Executive VP, Dedicated Rotors International Pvt. Ltd (DRI) as he changes in figures and tells us that DRI's one building in 2001 is 100 green buildings, with 150 million sq ft registered for certification currently, and it has come a long way. "This, particularly with around

2,000 green buildings expected to come up by 2012 and the overall annual investment towards urban green building construction around US\$ 1,000 million," adds Pahwa, who has joined auxiliary industries associated in bringing the Green Revolution to infrastructure space.

His bit being that of green heating, ventilation and air-conditioning systems (HVAC). Green equipment now holds prominence in the revolution, a fact that is acknowledged by Green Building Councils (GBC) in India and Vietnam, of which the company is a founder member. "Our air-conditioning equipment helps improve the indoor air quality, which at times is 18 per cent more polluted than the air outside, and can lead to sick building syndrome, reduces productivity and affects health," Pahwa says. But along with bringing in healthy air, they have designed the equipment in a way that it uses less power. "This, because we need to that use of power saving equipments can reduce the total power consumption of a building by at least 12 per cent," he points out that this awareness has got India to a level that it now has the third largest footprint of green buildings in the world.

Sunday post 7

**On the eco trail**

**DRI launches India's first DOAS**

At **DRI**, innovation is believed to be the key to growth. **DRI** has established a worldwide reputation for clean technology innovations. Keeping with this philosophy, **DRI** has launched an array of new products in Fresh Air HVAC Systems. One of such evolutionary new technologies is India's first DOAS (Dedicated Outdoor Air System). This system can assist in scoring substantial LEED points for green buildings.



Displayed at **ACREX INDIA 2010**  
17-20 Feb., 2010 Mumbai





## Towards Fresher & Healthier 'In'vironment in Hospitals with **DRI Treated Fresh Air (TFA) Unit**

### A few of many hospitals/medical centers, maintaining Indoor Air Quality (IAQ) with DRI EcoFresh range:

- Apollo KH Foundn., Chennai & Ranipet
  - Asian Heart Research Instt., Mumbai
  - Base Hospital, Agra & Guwahati
  - Cancer Hospital, Chennai
  - Dhirubhai Ambani Hospital, Mumbai & Raigarh
  - Escorts Heart Inst. & Research Centre, New Delhi, Baroda & Jaipur
  - Max Devki Devi Hospital, New Delhi
  - Saifee Hospital, Mumbai
  - Vinayak Hospital, Salem
  - Woodlands Hospitals & Medical Research Centre Ltd., Kolkata
  - Government Institute, Taiwan
  - Kota Bahru Hospital, Malaysia
  - Putra Jaya Hospital, Malaysia
  - Queen Elizabeth Hospital, Malaysia
  - Damansara Specialist Hospital, Malaysia
  - Kuala Lipis Hospital, Malaysia
  - Sultanah Aminah Hospital, Malaysia
  - Alor Setar Hospital, Malaysia
  - Sandakan Hospital, Malaysia
- ... and many many more!

Hospitals are no longer only the institutions for the care of the sick. Instead they prefer to provide all comfort in terms of health, comfort, care and clean air that smells good and healthy to ensure faster healing, healthier inmates and happy clients.

Substantial amount of heat is normally generated internally by the occupants and operating equipments. An effective cooling (and heating depending upon the external weather conditions) and ventilation systems combined with good insulation of hospital building are required to reduce hospital's sensitivity to the outside weather.

According to the studies, the hospitals, as large consumers of energy, have high bills for electricity and fuels. They have to maintain high air-conditioning to maintain health care

facilities, standards, faster healing, healthier inmates and happy clients. Air-conditioning constitutes a significant component, estimated as 15-20% of the hospital operating and maintenance cost.

### HVAC system as major electricity end-user in Hospitals

In many large and centrally air-conditioned hospitals, HVAC systems may consume 40% of total electricity consumption. Air-conditioning and Ventilation system in hospitals is required for :

- Maintaining the requisite indoor temperature, air distribution and humidity levels for thermal comfort.
- Maintaining indoor air quality, particularly in areas requiring prevention of infection.

### Ventilation and Air-conditioning

Ventilation is required not just to combat heat gains from lighting, staff, patients and specialist equipment but, more importantly, to provide high air change rates in operation theaters and on the wards to help eliminate airborne bacteria. It is also required for infection control.

### Meet mandatory healthcare air quality (fresh air) standard without extra energy/project cost

Increasing ventilation rates translate into two ways – An improved indoor environment and significant higher utility bills for the owners. Hence, the effective management of energy systems becomes imperative. The solution is the use of energy recovery devices which meet mandatory healthcare air quality (fresh air) standard without extra energy/project cost.

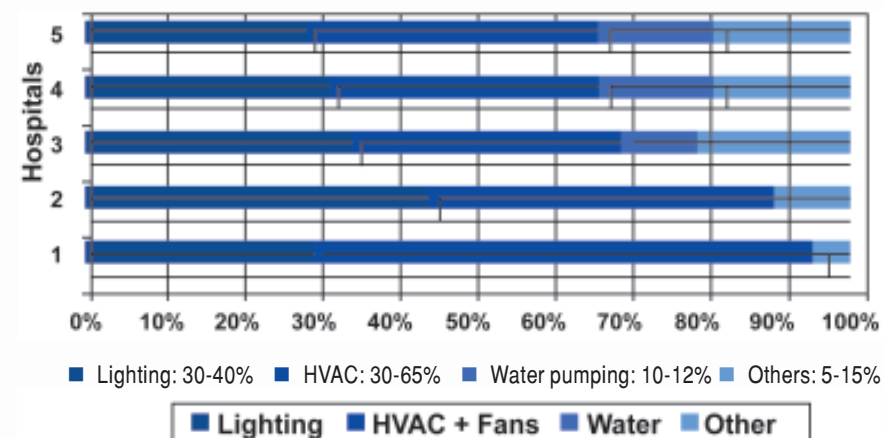
Good IAQ depends on adequate supply of fresh air, absence of pollutants and good distribution of air to the breathing zone of occupied spaces.

**DRI Treated Fresh Air (TFA) Units** with *EcoFresh* wheels inside can provide the required fresh air without increasing the load on air-conditioning systems and thus reducing the overall energy bills. It meets all the criteria as it is designed and manufactured using selection of materials to comply to Hygiene needs !

**DRI Treated Fresh Air (TFA) Unit** with *EcoFresh Inside*, exhausts stale, contaminated, conditioned room air and exchanges it with fresh outdoor air, recovering upto 75% energy from exhaust air through a next-generation *EcoFresh* enthalpy rotor.



The range of electricity consumption for major end-users can be summarized as under:



*General Comfort Conditions as per NBC, 2005 and ASHRAE Handbook 2007 HVAC Application	
Function Space	Minimum Total Air Changes per Hour
<b>National Building Code, 2005</b>	
Sterilization	15-25
Wards	6-8
<b>ASHRAE Handbook 2007 HVAC Application</b>	
<b>Surgery and Critical Care</b>	
Operating room (all outdoor air system)	20
Operating room (re-circulating air system)	20
Delivery room (all outdoor air system)	20
Delivery room (re-circulating air system)	20
Recovery room	6
Nursery suite	12
Trauma room	12
Anesthesia storage	8
<b>Nursing</b>	
Patient room	6
Toilet room	10
Intensive care	6
Protective isolation	12
Infectious isolation	12
Isolation alcove or anteroom	10
Labor/Deliver/Recovery/Postpartum	6
Patient Corridor	4
<b>Ancillary</b>	
Radiology X-ray (Surgical and Critical Care)	15
Radiology X-ray (Diagnostic and Treatment)	6
Radiology Darkroom	10
Laboratory general	6
<b>Function Space</b>	
Laboratory bacteriology	6
Laboratory biochemistry	6
Laboratory cytology	6
Laboratory glass washing	10
Laboratory histology	6
Laboratory nuclear medicine	6
Laboratory pathology	6
Laboratory serology	6
Laboratory sterilizing	10
Laboratory media transfer	4
Autopsy	12
Non-refrigerated body- holding room	10
Pharmacy	4
<b>Administration</b>	
Admitting and Waiting Rooms	6
<b>Diagnostic and Treatment</b>	
Bronchoscopy, sputum collection, and pentamidine admin	12
Examination room	6
Medication room	4
Treatment room	6
Physical therapy and hydrotherapy	6
Soiled workroom or soiled holding	10
Clean workroom or clean holding	4
<b>Sterilizing and Supply</b>	
Sterilizer equipment room	10
Soiled or decontamination room	6
Clean workroom and sterile storage	4
Equipment storage	4
<b>Service</b>	
Food preparation center	10
Laundry general	10

\*Excerpts from energy efficiency in hospitals – Best Practice Guide.



**DRI™ ARCTIC COOLERS**



## A reliable fresh air supply in confined space for

**Process Cooling** **Equipment Cooling** **Personnel Cooling**  
to increase safety and improve production

**DRI Arctic Coolers** produce effective cooling by combining a natural process - water evaporation with a simple, reliable air moving system. Fresh outside air, filtered through the saturated evaporative media, is cooled by evaporation and circulated by a suitable sized blower. Adequately designed, such cooling lowers the fresh air temperature by 7-12°C e.g., the air-off temperature from the evaporative cooler for an outside temperature of 43°C can be as low as 28-30°C.

While using an evaporative cooler to keep the hot air in your facility out, leave a window or door cracked open. This allows new cooled air in and warmer air to escape. This also means that stale air escapes the place. Air-conditioners are closed systems, i.e. they use the air from inside your place over and over again while an evaporative cooler constantly draws in fresh air from outside.

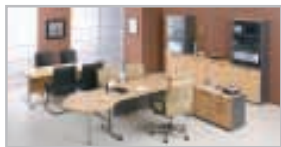
### How heat affects your company's bottom line . . .

- ◆ Work output drops
- ◆ Production drops off
- ◆ Product Quality drops
- ◆ Company profitability decreases

- ◆ Increased downtime
- ◆ Reduced profit margins
- ◆ Increased accidents
- ◆ With accidents - increased insurance rates

### Advantages with DRI Arctic Coolers:

- Precise temperature control
- Humidity control
- Vibration free
- Low maintenance
- Silent
- CFC free, no "green house" effect
- Operational in high ambient temperatures
- Comfortable habitation and working environment
- Improved Indoor Air Quality
- Higher productivity
- Lower absenteeism
- Lower operating costs (approx. one tenth of the air-conditioning cost)



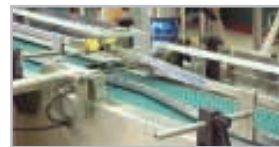
Office



Green House



Textile Industry



Manufacturing Unit



Paper Mill



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A **PAHWA** ENTERPRISE