FRESH FACTS

IAQ News from DRI™

Other PAWA™ Group Companies

Bry-Air®

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DRI bags "Star Performer" Award from EEPC

DRI has been yet again recognized by EEPC (Engineering Export Promotion Council) for its "Outstanding contribution to Engineering Exports" and awarded the "Star Performer" for the year 2007-2008 in Northern Region.

The company has been awarded 100% success rating under **AHRI** evaluation programme for last consecutive seven years & has been a participating member of the **Eurovent** certification program for Rotary Heat Exchangers right from its inception. **DRI** exports over 70% of its produced equipment to almost all the countries in the world including South East Asia, China, India Sub continent, West Asia, Africa, Australia, Japan, Korea, Europe and North and South America.

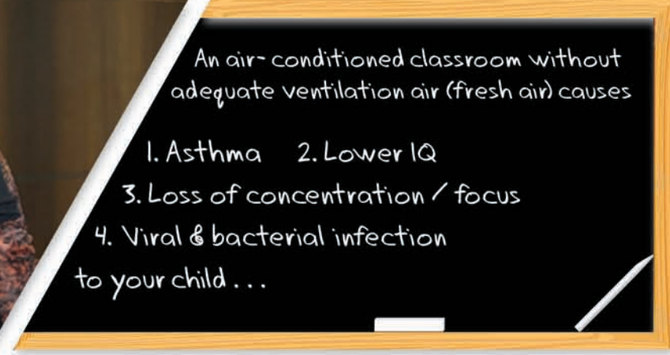
Your Green HVAC Partner in step with the Green Building Movement World-wide

CORPORATE MEMBER EmiratesGBC

DRI has become the Corporate Member of the Emirates Green Building Council. **DRI** supports the promotion and development of Sustainable Buildings all over the globe. In line with the commitment for a sustainable future, **DRI** is working together with various Green Building Councils and partners them to bring the best into modern construction practices. A founder member of the Green Building Councils (GBC) in India and Vietnam, **DRI** is the member of the GBCs in the USA, Philippines, South Africa, Malaysia, Singapore and Australia.

DRI Green Building Products help to maintain Indoor Air Quality (IAQ) requirements and recover energy from exhaust air, resulting in considerable reduction in installed tonnage and utility bills. They also assist in enhancing Indoor Air Quality (IAQ), maintaining desired temperature and humidity and increasing productivity.

Indoor Air Quality in Schools !!



Improving Energy Efficiency and Learning Performance in Educational Institutes

Schools are central to the growth of the nation. Studies reveal an alarming percentage of schools with facility problems related to Indoor Air Quality (IAQ). Poor IAQ in indoor spaces such as classrooms can have adverse effects on occupant's (students, teachers, technical and administrative staff) health, comfort and learning performance.

Majority of new schools have air-conditioned classrooms, designed for physical comfort but with minimal or no Fresh Air.

Present Situation

- The air changes are not sufficient and generally much lower than mandatory design requirements.
- During classroom occupation, indoor concentration of carbon dioxide (CO_2) rapidly goes beyond recommended limit values, and this is because of the deficit of fresh air ventilation.
- Increased concentration of a number of volatile compounds (e.g.: formaldehyde, toluene, benzene, etc.)

The Sick Building Syndrome (SBS)

Occupants of buildings with poor IAQ report a wide range of health problems which are often called Sick Building Syndrome (SBS) and Building-Related Illness (BRI).

The term Sick Building Syndrome (SBS) is used to describe cases in which building occupants experience adverse health effects that are apparently linked to the time they spend in the building. However, no specific illnesses or cause can be identified.

Building-Related Illness (BRI) refers to less frequent (but often more serious) cases of people becoming ill after being in a specific building at a certain time. In these cases, there is usually a similar set of clinical symptoms experienced by the people and a clear cause can often be found upon investigation. Legionnaires disease is an example of BRI caused by bacteria which can contaminate a building's air conditioning system.

Some of the Indoor Air Contaminants

Source	Contaminant
Building occupants	Carbon dioxide (CO_2), tobacco smoke, perfume, body odors.
Building materials	Dust, fiberglass, asbestos, gases including formaldehyde.
Workplace cleansers, solvents, pesticides, disinfectants, glues	Toxic vapors, volatile organic compounds (VOCs).
Furniture, carpets and paints	Gases, vapors, odors.
Carpets, fabric, foam cushions	Dust mites
Photocopiers, electric motors, electrostatic air cleaners	Ozone.

Fresh Air Ventilation is vital for schools

ASHRAE Standard 62 recommends a minimum ventilation rate providing at least 35-50 cmh (20-30 cfm) of Fresh Air per student.

Air conditioning does not inherently provide ventilation; it simply cools the air already inside the room. It also uses a large amount of energy, leading to the resultant high operating costs and environmental impact.

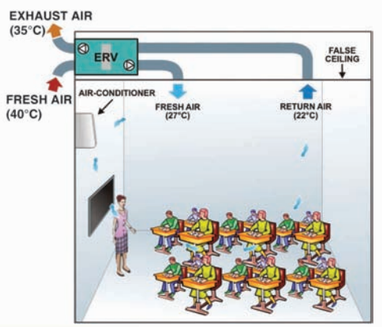
To achieve satisfactory IAQ, when designing the indoor environment of schools, kindergartens and other educational institutes special attention must be paid to the **Fresh Air Ventilation Systems**.

Importance of good HVAC systems for schools

A Fresh Air Ventilation System guarantees an optimal air quality to its users ensuring the healthiest possible oxygen rich breathing air.

A good HVAC system provides :

- Improved academic performance
- Substantially reduced Energy costs



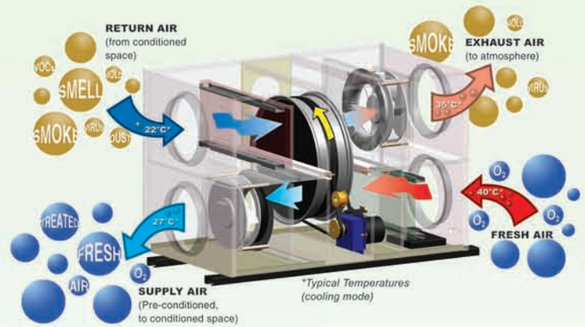
- Good Indoor Air Quality and Health
- Higher Comfort
- Increased Productivity
- Staff Satisfaction
- Improved relationship with Parents
- Good Public Image

DRI ERVi ENERGY RECOVERY VENTILATOR improves learning environment and reduces energy costs

- Replaces stale, polluted indoor air with fresher, healthier and oxygen rich outside air.
- Ideal for tightly sealed modern school buildings.
- Compact unit size allows it to be retrofitted with your existing air-conditioning system to enhance the indoor air quality.

How does it work ?

The heart of the Energy Recovery Ventilator is the ***EcoFresh*** desiccant coated energy recovery wheel, which slowly rotates between its two sections. In one section, the stale, conditioned air is passed through the wheel and exhausted to the atmosphere. During this process, the wheel absorbs sensible and latent energy from the conditioned air, which is used to pre-condition the incoming Fresh Air in the other section, during the second half of its rotation cycle. Thus, you can have more Fresh Air at lower energy costs inside your conditioned space.



DRI maintains good IAQ at Doon School, Dehradun, India

The Doon School has always been known for its excellence in the stream of education and producing future leaders. It provides an environment in which every student discovers and realizes his full potential.

To fulfill the vision, the Doon School installed **DRI ERV** to enhance air quality and improve energy efficiency of their facility.

Facts

Project :
Doon School Dehradun

Application :
Auditorium (Art School)

DRI Equipment :
ERV 500i (300cfm)

Contractors :
Composite Engineers, Dehradun

Few other Schools maintaining Indoor Air Quality (IAQ) with DRI ERV :

- IMIS, Bhubaneshwar, India
- Doon School, Dehradun, India
- KIIT Bhubaneshwar, India
- KIBS, Kochi, India
- Shalimar Medical College, Lahore, Pakistan
- Aldrich Bay & Chaiwan Primary Schools, Hong Kong
- New British Primary School, UAE
- Beacon School, UAE
- CHYN-YIH Junior College, Taiwan
- ALDRICH BAY & CHAIWAN Primary School, Hong Kong
- University Malaysia Sabah, Malaysia

DRI helping Schools take the LEED certification

Green schools cost less to operate, freeing up resources to truly improve students' education. Their carefully planned acoustics and abundant daylight make it easier and more comfortable for students to learn. Their clean indoor air cuts down sick days and gives our children a head start for a healthy, prosperous future. And their innovative design provides a wealth of hands-on learning opportunities.

Green Schools are healthy for students, teachers, staff and the environment. Green Schools provide productive learning environment with ample natural light, high-quality acoustics and air that is safe to breathe. Schools everywhere are going green, nurturing children while saving money.

DRI Green Products have played a major role in many projects for achieving sustainable Green Building status with LEED and other energy certifications.

To know more, **please contact us @ drimarketing@pahwa.com**

Upcoming Events

Conference on Green Homes
30-31 July 2010, India Habitat Centre, New Delhi

TechFest – 3-4 Sept 2010, Goa

Frigair – 8-11 Sept 2010, MTN Expo Centre, South Africa

Greenbuilding – 20-22 Sept 2010, Cape Town, Africa

Green Building Congress – 7-9 Oct 2010, Chennai

AHR Expo – 26-28 Oct 2010, Mexico

Green Buildings – 6 Aug 2010, PHD House, New Delhi

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A PAHWA ENTERPRISE