

**NATIONAL ENERGY CONSERVATION AWARD – 2008**  
**OFFICE BUILDINGS**

**COMPANY PROFILE**

**PBC™ - STIP provides office facilities on a “Plug & Play” basis.**

PBC™ - STIP as a 'partner of choice' offers a suite of 28 support services to its clients in Delhi and NCR. We have been a leading provider of office facilities and services to Corporate & fortune 500 companies planning a foray into India. We believe in winning – being the best in our business. Care for the environment is intrinsic to our approach to business. PBC™-STIP, with an individual annual turnover of Rs. 20.22 crores is an SME in service sector. It is located at 21, Nehru Place Greens, New Delhi with total number of employees exceeding 500 including crewmembers. The total built up area of our building is 50400 Sq Ft.

PBC-STIP is involved in the business of providing furnished office space & office services facilitating business through these services at one stop. It provides the following services:

***Conferencing, Banqueting, Art Gallery, Rent-a-cab services, Advisory and Consultancy to foreign and Indian companies (Business Valet), Food and Beverage, Providing Farm Fresh Greens thru Green Grocer, Housekeeping, Travel & Tour services, Internet provider, Security, Engineering and Safety, e-enabled business, process outsourcing, public relations, marketing, besides having a state of the art & high tech, fully connected easily accessible business center in the heart of the city.***

**BUSINESS CENTRE AMENITIES**

- An independent seven storied building covering an area of 50,000 sq. Ft.
- Centrally Air-Conditioned
- 100% Power Back-Up
- 24 hours security, equipped with a fire alarm and protection system
- Reserved Car Parking
- Bandwidth On Demand
- Indoor Air Quality conforming to USA, ASHRAE Standards
- Electronic Signage
- Zero VOC (Volatile Organic Compound) Carpets in all suites
- Ergonomically & Aesthetically designed office interiors
- Biometrics
- CCTV surveillance & Access Control Systems installed for enhanced security
- Wi-Fi enabled building



## OUR VISION

To stand out as an organization, with passion for quality service, care for environment & sensitive to people around which inspires us from within to professionally provide end-to-end business support to our customers whom we see as the essence of our success.

## OUR MISSION

To be an excellent, world-class business support services company; committed to deliver benchmarked, quality services to address customers' specific needs, whilst caring for the environment & people around us.

We firmly believe and abide by the concept that service excellence and delivering quality service by following the triple bottom line approach must be a key part of the very structure and operation of an organization, and that people and systems in the organization must be constantly tuned to customer needs and to management's evolving concept of service excellence.

## CERTIFICATIONS & AWARDS

PBC™ -STIP is perhaps the only Business Centre in India with six international Certifications as under:

- ISO 9001:2000 Quality Management System
- ISO 14001:2004 Environment Management System
- SA 8000:2001 Social Accountability
- OSHAS 18001:1999 Occupational Health and Safety
- ISO 22000:2005 Food Safety Management System
- Commitment to UN Global Compact

## AWARDS & ACCOLADES

1. Received G-Cube Shrishti Award for Good Green Governance on April 22<sup>nd</sup> 2008 from the Honourable Chief Minister of Delhi Ms. Sheila Dikshit.
2. Received Special Jury Recommendation Award for "Innovative System Design in IAQ" from Bry-Air in 2008.
3. Received Commendation Certificate from Delhi Transco Limited on our efforts towards promotion of Energy Efficiency & Renewable Energy Measures.
4. Received the most admired, top honoured & prestigious Greentech Environment Excellence Gold Award 2007, from Greentech Foundation
5. Received the coveted Golden Peacock Award 2007 for Environment Management, instituted by the World Environment Foundation.
6. Our CEO Mr. Kamal Meattle was honoured by the MIT India Program for his distinguished achievement and exceptional service to country, society and MIT on 20<sup>th</sup> September, 2007
7. Received Certificate of Merit from IMC Ramakrishna Bajaj National Quality Award 2006 in the Small Business Category.
8. Received Ethics is good Business award in December 2005 from *H.E. Dr. A. P. J. Abdul Kalam*, Hon'ble President of India.
9. Selected by CII as one of the four companies in India for Corporate Sustainability Management Systems and was showcased at the World Summit for Sustainable Development, Johannesburg 2002.
10. PBC™ - STIP was given the GreenTech Silver Award 2002 for Environmental Performance & innovative initiatives in the field of Environment.

### PBC™ - STIP COMPLIANCE WITH STATUTORY AND OTHER REQUIREMENTS

- Delhi Prohibition of Smoking and Non-Smokers' Health Protection Act, 1996 issued by NCT.
- Delhi Fire Safety and Fire Prevention Act, 1997
- ASHRAE standards
- Control of Water pollution by segregating the solid material while washing utensils issued by Delhi Pollution Control Committee Department of Environment, Govt. of N.C.T of Delhi for eating-places, Dhabas, Small Restaurants etc.
- Lift License
- MCD Health Department License
- Eating house Certificate from DCP
- L-4, Bar License
- Sales Tax registration
- Shops & Establishment Act

### ENERGY CONSERVATION ACHIEVEMENTS

#### AIR QUALITY INITIATIVES

The Indoor Air Quality of Paharpur Business Centre (PBC™-STIP) meets the specified **ASHRAE (American Society for Heating Refrigeration and Air conditioning Engineers)** Standards.

A full fledged Indoor Air Quality division equipped with Indoor Air Quality lab has been set up to continuously monitor and improve the indoor air quality.

It ensures: **Increased fresh air supply to 20 cfm per person (The building is designed to accommodate 400 people at a time with 4 plants per person).**

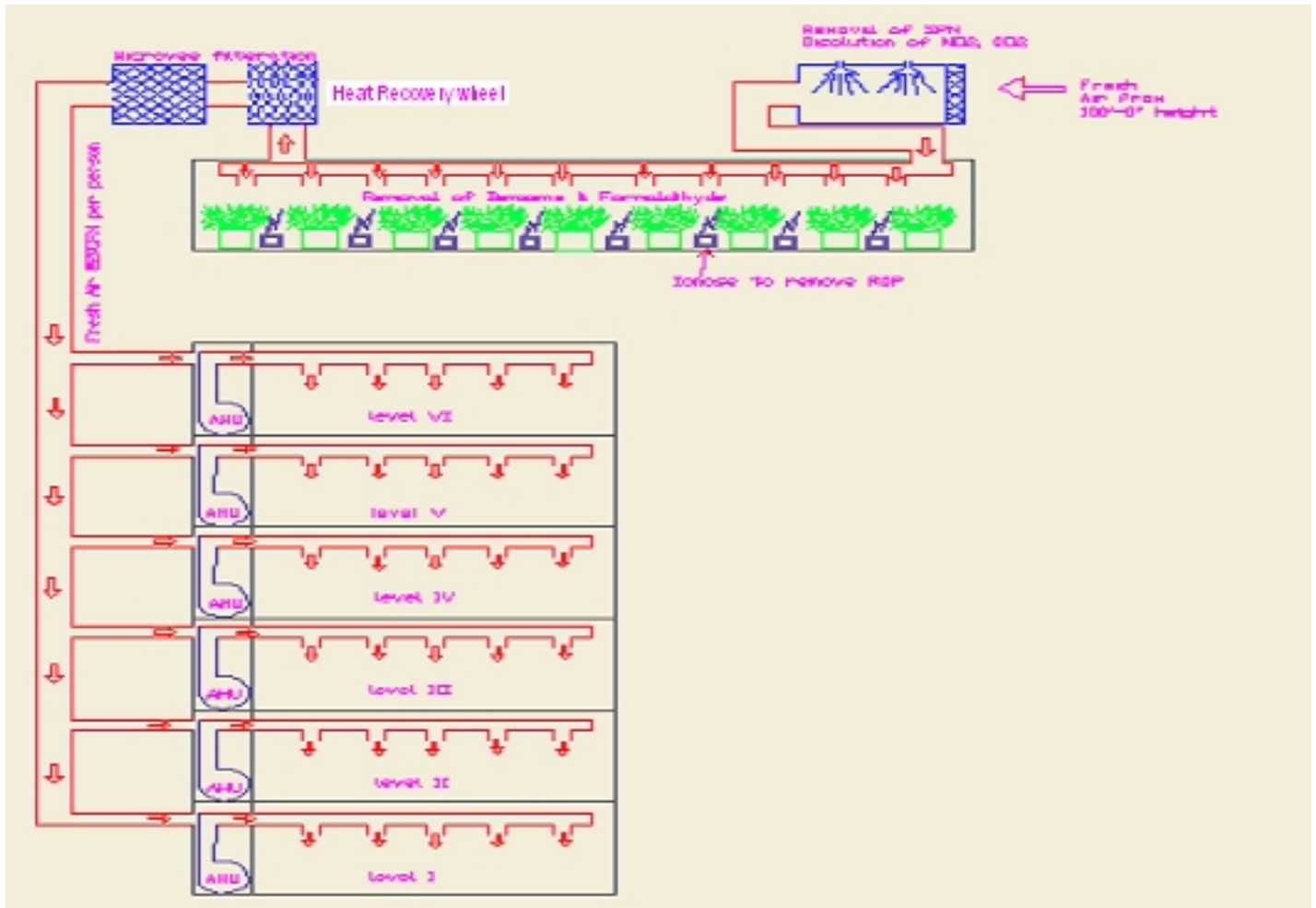


[A view of our Green House](#)

Low CO<sub>2</sub> levels that result in higher blood oxygen and higher productivity. A natural system of air purification through plants has been evolved and our Business Centre is a No - Smoking building. This is done through a very scientific system: Air from a height of 120 ft is sucked in, passed through a water shower to free it from any water soluble particles, this is then pumped into a chamber which has more than 1000 plants that enrich it with oxygen and increase its humidity. The oxygenated air is then fed into the AC plant for cooling. Then it is provided to all the floors thru individual AHUs. (Air Handling Units).

The AC plant has been so designed that it does not reuse the air but takes in fresh air every time. To save the energy, an energy wheel is in place that exchanges heat. It reduces the temperature of the incoming air. A chemical cartridge has also been installed in the Heat Recovery Wheel to reduce the poisonous gases like SO<sub>2</sub>, as a result of this SO<sub>2</sub> has been completely reduced to below detectable limits (BDL) and there has been partial reduction in NO<sub>2</sub> & SPM levels.

**IAQ System Design at PBC™ - STIP:**



We post our daily readings on our website: [www.pbcnet.com](http://www.pbcnet.com), please log on for the day's reading both Ambient & in PBC™-STIP.

PBC™-STIP offers for those who work in the building, near mountain fresh air, in the heart of New Delhi - which improves productivity, as a person does not get tired and feels fresh, thus leading to

***A Natural Way Of Purification.....  
.....By Using Green Plants***

**Areca Palm**

- Produces Oxygen During the day
- Removes Chemical Toxins
- Easy to Maintain.



**ARECA PALM**



**SENSEVIERIA TRIFASCIATA**

**Sensevieria Trifasciata**

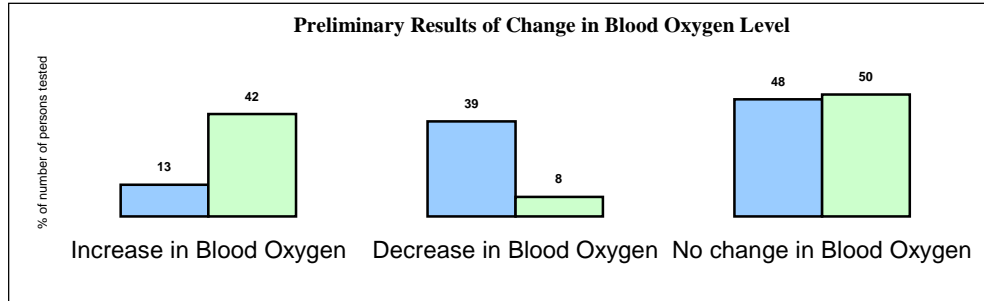
- Produces Oxygen at Night
- Removes Chemical Toxins
- Easy to Maintain

# PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK

## Benefits of Practicing IAQ

A preliminary study shows an increase of average 1% in the blood oxygen levels in a seven-hour period, of a sample of people working in the premises i.e. during the working day.

Note: A Study was carried out on a sample of people within the PBCTM STIP building and another building adjoining PBCTM-STIP in the neighborhood (without IAQ) Contrast: In Adjoining non-air conditioned building PBC™-STIP: Paharpur Business Centre and Software Technology Incubator Park



It is clearly evident that if you spend 7-8 hrs in our building there is a 42% possibility of 1% increase in your blood oxygen levels compared with another building in the vicinity, where IAQ is not practiced.

### INDOOR AIR QUALITY DATA OF PBC™-STIP

Parameter	ASHRAE Standard (maximum)	1996	1999	ASHRAE Standard (maximum)	2002	2005	2006	2007	2008
CO <sub>2</sub>	1000 PPM	818	369	700 ppm excess of ambient	351	362	364	628	625
Carbon monoxide	0.055ug / m <sup>3</sup>	BDL #	BDL #	10 mg / m <sup>3</sup>	BDL #	0.070	0.070	0.071	0.089
Nitrogen dioxide	100 ug / m <sup>3</sup>	30	22	100 ug / m <sup>3</sup>	20	22	22	20	21
Sulphur dioxide	80 ug / m <sup>3</sup>	20	28	80 ug / m <sup>3</sup>	23	19	BDL #	BDL #	8.2
SPM	260 ug / m <sup>3</sup>	606	118	260 ug / m <sup>3</sup>	92	82	74	62	58
RSPM	75 ug / m <sup>3</sup>	218	55	50 ug / m <sup>3</sup>	46	37	32	19	18

### AMBIENT AIR QUALITY DATA 1996-2008

Parameter	ASHRAE Standard (maximum)	1996	1999	2001	ASHRAE Standard (maximum)	2002	2005	2007	2008
CO <sub>2</sub>	1000 PPM	455	350	339	700 ppm excess of ambient	331	345	402	465
Carbon monoxide	0.055 ug / m <sup>3</sup>	0.015	0.015	0.020	10 mg / m <sup>3</sup>	0.028	0.29	0.56	0.92
Nitrogen dioxide	100 ug / m <sup>3</sup>	67	38	34	100 ug / m <sup>3</sup>	32	35	23	28
Sulphur dioxide	80 ug / m <sup>3</sup>	69	40	32	80 ug / m <sup>3</sup>	31	32	11	15
SPM	260 ug / m <sup>3</sup>	1047	593	390	260 ug / m <sup>3</sup>	389	404	290	281
RSPM	75 ug / m <sup>3</sup>	672	502	355	50 ug / m <sup>3</sup>	349	354	137	133
Ozone	100 ug / m <sup>3</sup>	BDL#	BDL#	BDL#	0.005 mg / m <sup>3</sup>	BDL#	N.A.	BDL#	BDL#
Formaldehyde	0.4 mg / m <sup>3</sup>	0.278	BDL#	BDL#	0.012 mg / m <sup>3</sup>	BDL#	N.A.	BDL#	BDL#
Lead	1.5 mg / m <sup>3</sup>	2	0.003	BDL#	1.5 ug / m <sup>3</sup>	BDL#	N.A.	BDL#	BDL#
Benzene	10 ug / m <sup>3</sup>	45	18.5	10	Carcinogenic;	10	N.A.	7.42	BDL#

## PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK

- \*\* Society for Heating, Refrigeration, Air Conditioning Engineers 62-1999 (revised)
- \*\* American Society for Heating, Refrigeration, Air Conditioning Engineers 62-2001 (revised)
- # Below Detectable Level
- ^ Data till Dec. 2007

The following parameters are monitored for Indoor Air Quality in the Business Center

S.No.	Parameters measured	Instrument used for measuring	Minimum Sampling time
1.	<b>SPM &amp; CO<sub>2</sub></b>	<b>(a)</b> SPM & CO <sub>2</sub> Meter	<b>(a)</b> 8 hrs for SPM & CO <sub>2</sub> monitoring
2.	<b>SO<sub>2</sub></b>	<b>(b)</b> Pump : (1) Handy sampler A.P.M 821	<b>(b)</b> 8 hrs. for SO <sub>2</sub> monitoring
3.	<b>NO<sub>2</sub></b>	Envirotech make.	<b>(c)</b> 8 hrs. for NO <sub>2</sub> monitoring
4.	<b>CO</b>	(2) Organic Vapour sampler A.P.M 850 Envirotech	<b>(d)</b> 8 hrs for CO sampling & monitoring done fortnightly
5.	RSPM	make for CO monitoring (3) RDS A.P.M 460 Envirotech make for NO <sub>2</sub> monitoring <b>(c)</b> Spectrophotometer <b>(d)</b> 35 ml. Glass impinger <b>(e)</b> Dhona 100 DS – Balance	<b>(e)</b> 8 hrs sampling for RSPM, monitored weekly once.

### Summary on CO<sub>2</sub> level maintained at PBC without using Fresh Air: Recent Experiments

**An experiment was carried out at Paharpur Business Centre** to check whether the CO<sub>2</sub> levels can be maintained as per ASHRAE (American Standard for Heating, Refrigeration & Air-conditioning Engineering) Standard without pumping in Fresh Air in the building by using plants.

In other words, the objective was to see whether one can grow Fresh Air by using plants inside a building.

The experiment commenced on August 7, 2008 and is continuing till date.

The standard procedure to run the Fresh Air system- washing the ambient air through the Air Washer and then passing it through the UV unit and the Green House before pumping the fresh air rich in Oxygen was discontinued under this experiment.

The Exhaust of the building was also stopped thus the cool air conditioned air was re-circulated inside the building which also helped in savings in AC plant electricity units consumption.

The Co<sub>2</sub> levels, temperature, humidity and the occupancy inside the building was monitored every hour in all the six levels at PBC and the corresponding Ambient readings were also monitored.

The Building is being flushed by fresh Air each day in the early morning hours and in the evening after the AC plant is shut. At this time all the AHUs (Air Handling Units), the Air Washer and the Exhaust is run for about an hour. This is to ensure that the smell / odour is flushed out of the building that may have caused due to the concentration of visitors & occupants alike.

The Cooling Tower water temperatures for IN and OUT were also monitored on an hourly basis.

The important findings during this experiment has been-

Initially when there were only 350 plants in the building, **the CO<sub>2</sub> levels gone upto 550ppm over ambient at the max at any given point in time but still very much below what ASHRAE recommends i.e 700 ppm over the Ambient.**

After two weeks of monitoring, 100 more plants were put inside the building and during this period, it was observed that the CO<sub>2</sub> levels were remained well under control with max it has gone upto 450ppm over ambient at any given point in time with the same number of occupancy.

The air test for SPM, SO<sub>2</sub>, NO<sub>2</sub>, CO levels inside the building were done and were found OK as per the standards.

## PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK

The Electricity units consumed is as given under and a comparison with previous months/year given below-

	<b>Total units</b>	<b>AC plant units</b>
May 07	99620	44400
May08	83662	37160
June 07	105280	47988
June08	87894	43220
July 07	109720	52490
July08	89992	46000
August 07	106623	51990
<b>August 08</b>	<b>81518</b>	<b>42242</b>

Savings in terms of not running full day Air Washer, HRW and Exhaust. Conventionally the above work for 10 hours per day but in August 08 it run only for two hours.

	<b>2 hrs units</b>	<b>10 Hrs units</b>
Exhaust	3	15
Air Washer	10	50
HRW	26.74	133.7
Total	40 units	199 units

### **Savings per day- 159 units**

In the first week of September 100 more plants were put in the building that makes 550 in nos. and it has been observed that the CO2 levels had reduced further.

### **Learning's / Conclusion:**

Maintaining IAQ not only keeps the air clean in a closed building environment & has health benefits for it's occupants but it also improves employee performance as they are more agile, awake & alert compared to those who work in buildings that do not practice IAQ.

As a result of this there are fewer sick days & therefore the efficiency levels go up. It increases efficiency by almost 14% - 15%.

At PBC we practice it by using plants & as is evident from our recent experiment that despite having no Fresh Air in the building we are able to maintain even lower CO2 levels than prescribed by ASHRAE, because of increased number of Green Plants kept in the building.

We at PBC – STIP get continued supply of natural oxygen because of these plants

The same will be replicated on a much larger & advanced level in our new project that is being promoted by the management of PBC™ - STIP – GreenSpaces.

For more information on this new project log on to it's website: [www.greenspaces.in](http://www.greenspaces.in)

As per the study carried out by Central Pollution Control Board

“People working at Paharpur Business Centre in Nehru Place, which has filters to clean pollutants from air, were found to have 10-12 percent less lung impairment than those working in Nirman Bhawan and Mausam Bhawan, where there are no air filters”.

The above report was also published on Hindustan Times dated 1<sup>st</sup> October 2008. Attached below for reference:

**Metro**  
HINDUSTAN TIMES, NEW DELHI, WEDNESDAY, OCTOBER 1, 2008

**DELHI elections 2008** POLL MCD for 111 tions

# Every breath you take... ..is poisoning you

**Know the enemy**  
What is respirable suspended particulate matter (RSPM)? It is a general term for air-borne particles smaller than 10 microns in size. That's smaller than one-fifth the width of a human hair.

**Why is RSPM harmful?**  
The nose cannot block out RSPM, especially particles smaller than 2.5 microns (one-twentieth the width of a human hair) in size. RSPM penetrates deep into the lungs and affects their functioning.

**What's causing the high level of RSPM in Delhi?**  
Vehicular pollution. Since the mid-1990s, Delhi's vehicular population has grown faster than its human population.

**EFFECTS OF REDUCED LUNG FUNCTION**  
• Temporary loss of memory  
• Burning sensation  
• Depression  
• Anxiety

**THE NORTH-SOUTH DIVIDE**  
Effect of RSPM levels on lung function, in different parts of Delhi

Area	Lung function reduction	RSPM*
North Delhi	43.8%	179
Central Delhi	41.3%	172
West Delhi	40.9%	165
East Delhi	37%	151
South Delhi	27.4%	137

\*micrograms per cubic metre

**Comparative reduction in lung function in Delhi and the Control Areas\***

Area	Reduction in lung function
Delhi (North)	43.8%
Delhi (Central)	41.3%
Delhi (West)	40.9%
Delhi (East)	37%
Delhi (South)	27.4%
Control Areas (Rural areas)	11.5%
Control Areas (Uttarakhand)	24.5%
Control Areas (West Bengal)	25.7%

\*Rural areas of Delhi, Uttarakhand and West Bengal, with an RSPM level of 42.5 micrograms per cubic metre. All figures in per cent.

**Wheezing, stressed and distracted? Blame it on the neighbourhood air**

**Chetan Chohan**  
New Delhi, September 30

IF YOU have been wheezing and coughing, or are feeling stressed out or distracted more than usual, you may want to consider changing neighbourhoods. A government study has found that people living in polluted neighbourhoods in Delhi lose their lung problems, inability to concentrate and high blood pressure on air pollution.

As many as 40.3 per cent adults and 43.8 per cent children in Delhi have reduced lung function, reports a study by Kolkata's Chittaranjan National Cancer Institute and Central Pollution Control Board.

North Delhi was most polluted, with people in Lawrence Road and Charoli Chowk neighbourhoods reporting greater lung impairment than those in the relatively cleaner south Delhi neighbourhoods of Greater Kailash and Hauz Khas.

Whenever the air gets smoggy, my nine-year-old gets an asthma attack. He has to be rushed to Patel Chest Institute

**ASHITA AGARWAL**  
Mukherjee Nagar resident

Lung function impairment was a high 96.8 per cent to 73.5 per cent among children in north Delhi, where the suspended respirable particulate matter (RSPM) was the highest — 179-186 micrograms per cubic metre (µg/m<sup>3</sup>).

The percentage of affected children is lower at 23.8 to 22.6 per cent in south Delhi, where RSPM is between 137 and 144 (µg/m<sup>3</sup>), the lowest in the Capital from 2002 to 2005.

Mukherjee Nagar resident Ashita Agarwal bears the health impact of pollution every moment as a fall in air quality aggravates her son's asthma. "Whenever the air gets smoggy, my nine-year-old gets an attack. He has to be rushed to Patel Chest Institute," says Agarwal, who was in hospital with her son on Tuesday, when RSPM levels crossed 250 µg/m<sup>3</sup> in north Delhi.

"We found that a reduction in lung function is directly related to air pollution. Even smokers — who have more lung defects than non-smokers — in polluted areas had poorer lung function than those in less polluted areas," said Twisha Lahiri, the principal investigator of the study.

Among the worst affected are traffic police constables manning busy intersections. "When I am at work during peak morning and evening hours, I have to sometimes make an effort to inhale the polluted air. I now have a constant burning sensation in my lungs," said a constable who did not wish to be named.

The study, which was released last week, examined 6,905 adults and 11,628 children in Delhi between 2002 and 2005 and the findings were compared with data for people living in rural Delhi, Uttarakhand and West Bengal.

[chohan@hindustantimes.com](mailto:chohan@hindustantimes.com)

**ENERGY CONSUMPTION**

S. No.	Year	Energy Consumption (Lakh kWh)
1.	2005-2006	10.7
2.	2006-2007	11.17
3.	2007-2008	10.77

**ENERGY CONSERVATION INITIATIVES**

- Installation of Heat Recovery Wheels
- Installation of Air Washer
- Use of Compact Fluorescent Light, Next Generation Tube light and Electronic Chokes
- Motion Sensors Installed at Toilets
- Solar Films
- Green Mesh
- Heat Reflecting Paints
- Mist Fans installed on rooftop to cool down the roof. This helps in bringing down the temperature by 4-6 degrees Celsius and saves energy consumed for cooling.
- Power consumption is monitored and units recorded at strategic points for analysis.
- Good Quality stabilizers are used and a power factor of 0.99 is maintained.
- Separate DG Sets are installed as per load requirement to save on energy and for optimizing the use of DG sets.
- High Efficiency Super Diesel is used for all GD sets to reduce pollution.
- Stack height has been increased for the DG set emissions as government norms.

**Heat Recovery Wheel (HRW)**

In Paharpur Business Centre we follow the ASHRAE Standards. According to these standards 20 cfm of fresh air should be supplied for each occupant in a close air-conditioned building.

At PBC, we suck fresh air from the optimum height where the pollution level is comparatively lesser than the air at the lower level. As the fresh air during the summer season is very warm e.g.- If the ambient temperature is 42 degrees and if the same is pumped into the building as per the number of occupants then the pressure on the chiller would be very high to maintain the temperature in the building.

Therefore, to reduce the pressure on the chillers we have installed a Heat Recovery Wheel, which is designed as per the specifications fixed by ISHRAE, The Indian Chapter of ASHRAE.

HRW is basically, used for exchanging the heat from the incoming air sucked from the ambient to the outgoing air from the building, while the coolness of the outgoing air is transferred to the incoming fresh air.



Heat Recovery Wheel

**Air Washer**

We have installed an air washer on the top of the building at the air suction point. The main function of the air washer is to remove the Suspended Particulate Matter (SPM) from the fresh air and increase the moisture level in the air as a

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result of which the temperature of the incoming air drops down. Due to this technology, the load on the chillers is reduced to a great extent.

### Use Of Compact Fluorescent Light, Next Generation Tube Light And Electronic Chokes

#### CFL's

Initially at PBC, we were using 406, 40 W GLS bulbs, in order to maintain 350 LUX level at the work place as per the ASHRAE Standards which was consuming 16,240 W. Now, we have replaced all the 40 W bulbs to 9 W CFL which straightaway saves 31 W per bulb. Details of all the Bulbs replaced by CFL's are mentioned below:

Currently PBC is Using CFL (A)	Equivalent GLS Lamps required for same lumens (B)	Fixed Quantity in use (C)	Power Saving Per hour (B – A) x C
9 Watts	40 Watts	406	12,586
10 Watts	60Watts	135	6,750
11 Watts	60 Watts	99	4,851
Total Energy saved			24,187

The total energy saving due to the change is of 24,187 W per hour.

#### Next Generation Tube Light And Electronic Choke

At PBC, we have replaced 1536 traditional tube lights with 1162 next generation Tube lights and all the old copper chokes were replaced with the electronic chokes while maintaining the LUX Level as per the ASHRAE Standards.

Type Of Tube Light	Cost (in Rs)	Power Consumed	LUX level
		in Watts	At 2.5 feet
White Light 36 Watts with copper choke of 40 Watts.(Nominal lumens:2450)	Tube: Rs. 38 Choke: Rs. 95	47.9	476
Phillips TLD 84NG, Yellow 36 Watts with Electronic Ballast (Nominal lumens:3250)	Tube: Rs. 65.25 Industrial Choke: Rs. 370	32.9	528

We were able to save 35,345 W per hour.

#### Motion Sensor

We have installed motion sensor lights in the bathrooms and lobbies throughout the building in order to control the misuse of electricity. These sensor lights automatically gets switched on as soon as it senses the human presence, rest of the time it remains off.



Motion Sensors

#### Green Mesh

The Total West side facing glasses in PBC is of 3,360 sq ft. We have placed Green Mesh in the balconies in order to reduce the heat gained from sunrays. By placing green mesh we have noticed a substantial drop in temperature inside the room, the temperature differential observed between ambient and balcony (between the green mesh and the window) is between 3-4 degree C. The temperature differential between the balcony and inside the room is between 5-6 degree C.

We have placed green mesh in all our west facing balconies in order to stop the direct sunlight into the rooms in turn reduces the load on the chiller similarly, we remove the green mesh during the winter season in order to allow direct sunlight inside the rooms to reduce the load on the heater.

## **PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK**



Green Mesh

### **SOLAR FILMS**

All the windows at PBC have solar films on it; this has primarily been done in order to reduce the heat penetration into the building.



Solar Films

***As a result of all energy efficient practices PBC™-STIP has been able to reduce its MDI from 735KvA to 552 KvA in 2007 summer resulting in savings of approximately Rs.350000 per annum***

### **WATER CONSERVATION INITIATIVES**

- Installation of Drip Irrigation
- Using of Soap Free Water for Gardening
- Installation of waterless urinals.
- Installation of Dish Washer
- Rainwater Harvesting
- Water Sensors Installed at Toilets

### **DRIP IRRIGATION**

All our balconies in our building also have a large number of plants with drip irrigation, which helps to reduce the heat as it increases moisture in the air



Drip Irrigation

### **USING OF SOAP FREE WATER FOR GARDENING**

After an extensive research we have come to a conclusion that we have approximately 150 liters of soap free waste water going into the drains. Looking at the scenario we decided to reuse the wastewater by channeling the flow towards the garden for irrigation purpose. This not only helped us in saving water but also saving electricity as now we do not use pumps for gardening purpose.

## PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK



Soap free water pipeline going to the garden

### WATERLESS URINALS

After the installation of water less urinals we observed that the frequency of filling the common water tanks has reduced substantially. This in turn has resulted into energy saving, as the pumps consumed a large amount of energy.

We had installed motion sensors for automatic Flush Control System but now as Waterless Urinals has been installed the electricity consumed by these automatic flush control systems is also saved.



Waterless Urinals

### RAIN WATER HARVESTING

PBC collects the rainwater from the roof with a total catchment area of 4,684 square meters (concreted) with an investment of Rs. 0.50 Lakhs and through pipes it goes to an underground tank where we filter the collected water and recharges it back into the ground. We made feedback structures with 100mm dia. As per the average rainfall of 211 mm at New Delhi from 2004 to 2007 and a 'run off' factor of 0.90 on, the average water than back to soil is 8,894.91 **Liters / year**. This technology has been provided by: Centre For Science And Environment, New Delhi. The surface water from the surrounding areas is diverted to a well in the NPG park from where the ground water is recharged. Ground water level increases and the total water available for use increased. Due to raise in water level, the working head of the pumps reduces and takes less pumping power. Quality of water improves due to the reduction in hardness. Eco systems enhanced with more ground water availability.



Rain Water Harvesting

### WATER SENSORS INSTALLED AT TOILETS



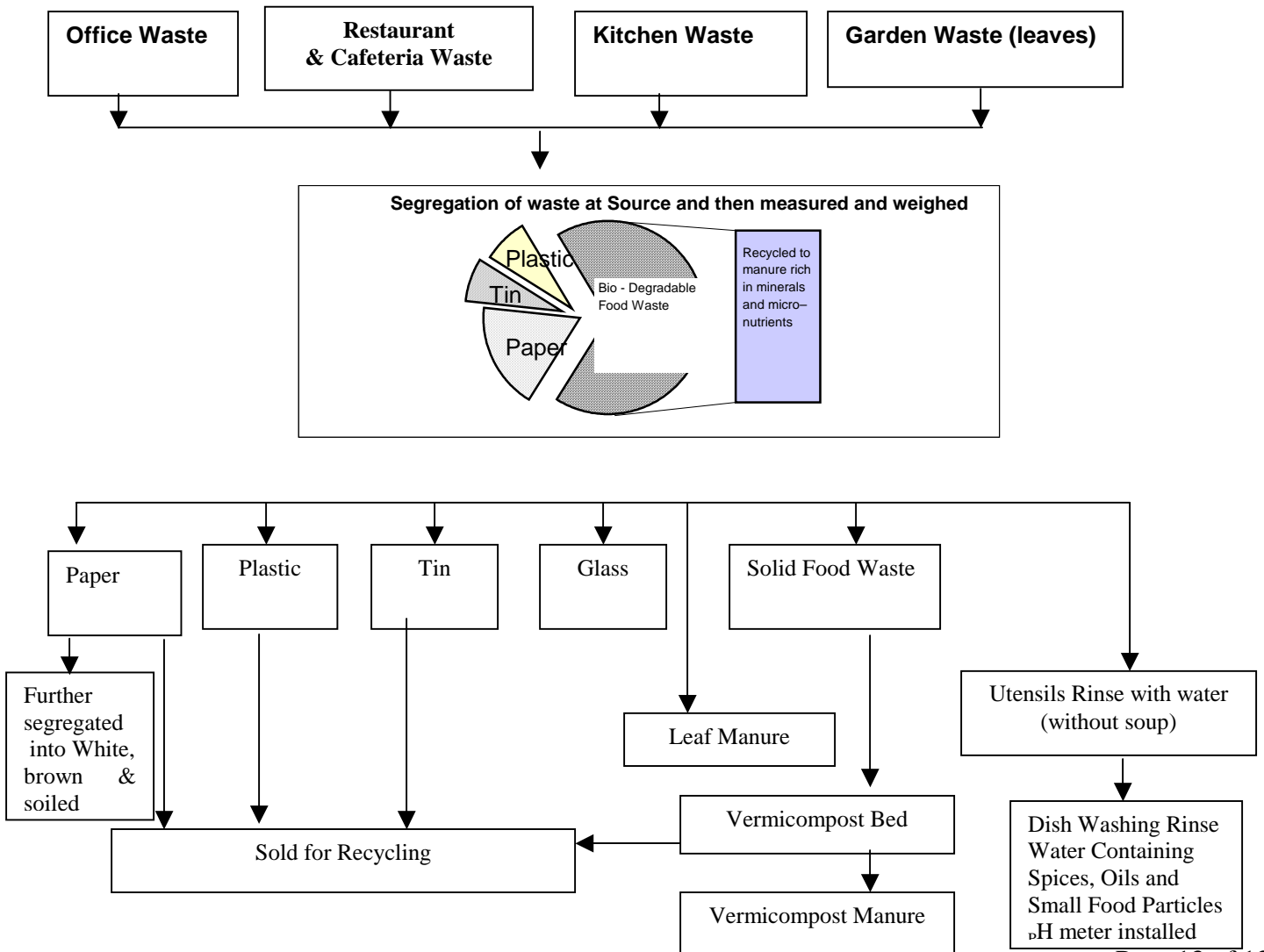
**Water Sensors**

*We save a total of about half million litres of water/year through the various measures undertaken by us.*

**SOILD WASTE MANAGEMENT**

- Use of internal electronic mail for correspondence- towards a paperless office
- Reuse of one-sided paper
- Recycling of all paper waste
- Reuse of plastic bottles
- Segregation of waste at source
- Vermi-composting

***Aiming for Zero Solid Waste***



## TRAINING & AWARENESS PROGRAMMES ON ENERGY SAVINGS

PBC™ - STIP also organized various training & awareness programmes based on Energy Efficiency for our team members, in which we created awareness & promoted the use of CFL & Energy Efficient Lighting Options. We encouraged our Team Members, including our crew members to use these at home and also provided soft loans to them to replace atleast two GLS lamps with 2 CFL lamps. Subsequently we also took an undertaking from each employee on replacement of GLS bulbs with CFL bulbs at their homes.



**TRAINING PROGRAMME FOR SECURITY & CREW MEMBERS AT PBC™-STIP**

We also conduct regular training programmes for vendors & suppliers to guide them about the policies and standards of PBC™-STIP



**Training programme for vendors & suppliers**

On World Environment Day 2008, we invited Philips to set up a sale counter / stall at PBC to sell CFL's & to create awareness on Energy Efficient Lighting Solutions at our Business Centre.



PBC™-STIP participated in the Environment Awareness Campaign organized by ASSOCHAM along with Coca-Cola India on the eve of World Environment Day on June 05, 2007 as a "GUEST OF HONOUR".

## **PAHARPUR BUSINESS CENTRE AND SOFTWARE TECHNOLOGY INCUBATOR PARK**

We also invited School children to sensitize them to the various issues relating to Environment & how each individual can take small steps to save our planet – “Earth” from the imminent dangers of Global warming. As we feel that care for the environment has to be nurtured & taught to each child from the very beginning in order to create responsible corporate citizens for the future.



**Students from Ahlcon International School keenly observing the presentation on Energy Conservation Practices at PBC™ - STIP**



**Students visiting Green House at PBC™ - STIP**