Presentation on
“Turbo Ventilators”

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AIR VENTILATOR AND WORKING CONDITIONS

SVAR PROJECTS

- Manufacturer & Supplier of **CHRIS** Eco-Friendly Air Ventilator.

Promoting Achievements that benefit business & communities

INDIAN ACHIEVERS' AWARD 2011

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This award is being presented to

VATSAL WILLIAM ROMAN
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for recognising outstanding achievements
at 29th India - International Achievers' Summit on

"THE INDO-THAI BUSINESS RELATIONS"

on 4th August, 2011 at New Delhi, India.

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CHRIS Eco-friendly Air Ventilator (CEAV) works by utilizing wind power induced by centrifugal action. The centrifugal force caused by rotating vanes creates low pressure which draws air out through rotating body. Amount of air drawn by ventilator is continuously replaced by fresh air from outside. Vanes of Ventilator is made of light wt. material(alluminium),so slight breeze is also enough to rotate ventilator cage.

A conceptual product that exhausts the hot gases from enclosed area without using any electrical power, as it is operated by natural air blow.

SEASONAL CLIMATE :

- Monsoon

  Temperature is moderate, more than winter & less than Summer.

  Moisture is high.

  Occurs From mid of June to September.

- Winter

  Temperature is lowest.

  Air is not dry and wet, means Moisture is moderate.

  Occurs From October to mid of February.

- Summer

  Temperature is Highest.

  Moisture is lowest.

  Occurs from March to mid of June.

Factors Affecting Working Conditions :

- Air temperature how hot or cold the surrounding air is.
- Humidity the moisture content in the air.
- Air movement including air speed (or wind speed), and air circulation.
- Radiant heat from the sun, or emitted by plant, buildings, fixtures or processes.

- Indoor air pollutants are generated by both
  - building occupants (and their activities)
  - contents of a building,
- Ventilation requirements include both
  - people component (to dilute - contaminants from people and their activities) and
  - area component (to dilute contaminants from non- occupant-related sources; that are more related to floor area than the number of people.

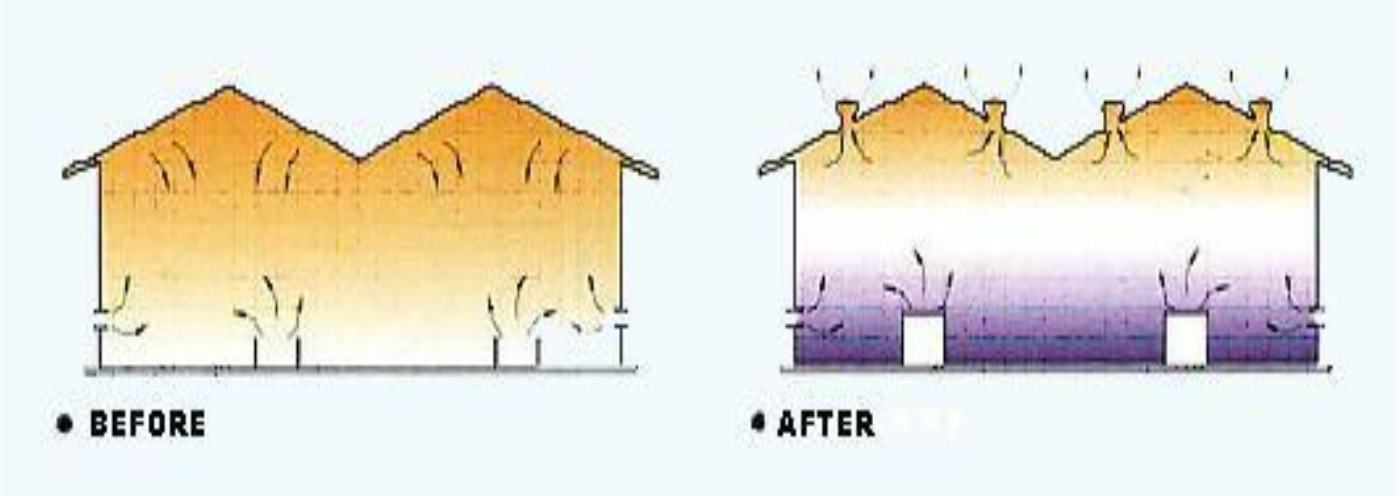
Effects Of Working Conditions:

- High Temperature
- Low Temperature
- Humidity
- High Air movement
- Low Air movement
- Indoor Air Pollutants

Working of Air Ventilator :

- Air ventilator is a type of Pollution free axial fan that works with the power of wind as well as ‘stack effect’, the difference in interior and exterior conditions.

It exhaust trapped space air which replaced by fresh air from inlets. This way air exhaust and comes in space to be ventilated.



How Air Ventilator Improves Working Conditions?

- Air ventilator maintains the plant temperature and moisture content nearer to the ambient temperature and moisture content by continuous circulation of air.

  Continuous circulation of Air also Helps in hot environment by evaporating cooling on personals skin. This way, air ventilator help to improve working conditions affected by high temperature, humidity, low air movement and radiant heat.

- It Release the Trapped gases, i.e. Hot air, Bad odors, gases generates from production processes, to the ambient without affecting production system and working personals, so much of problem caused by indoor air pollutants is solved.

APPLICATION

- Agro Food Industry.
- Automobile Industry.
- Bio-Technology.
- Cement Factory.
- Chemical Industry.
- Chloro-Alkali Paints.
- Cold Storage.
- Cosmetics.
- Dairy Industry.
- Domestic Applications.

- Electronics & Electrical Equipments.
- Engineering Company.
- Fertilizer Company.
- Flour Mill.
- Metal Industry.
- Oil Mill.
- Oil Refinery.
- Paper-Pulp Plant.
- Petrochemicals.
- Pharmaceutical Industry.
- Pigment.
- Plastic Industry.
- Plywood Industry

- Polymer Industry.
- Polysacks.
- Power Plants.
- Poultry Farm.
- Project Consultant.
- Rubber Industry.
- Small and Big Factory.
- Soda Ash Plant.
- Textile Industry.
- Tobacco Company.
- Ware House.
- Workshop.

Advantages :

- No electricity.
- No wiring.
- No rain water logging.
- No noise.
- No suffocation.
- No operating cost.
- No dust.
- 100 % deduction from income tax.
- Easy to install
- Weather & storm proof high temperature
- low weight alloy material, so slight breeze is also enough to rotate ventilator cage.
- Most economical.
- Run by wind power.

- Fresh & healthy air for all.
- Good breathing means good productivity.
- Profit making, profit means not only make money but also save money.
- Improve working condition and hence good productivity.
- Apart from the initial cost of the product and installation, Air ventilator has absolutely no recurring expenses. No maintenance and no extra energy consumption.
- Up to 30% savings in energy costs can be obtained when compared to other process ventilation systems. No repeat servicing or upgrading is required. Just fit and forget.

How to calculate Nos. of Air Ventilators required to Install.

- No. of Air ventilators =

$$\frac{\text{Volume of air to be exhausted in plant (Cubic Meter.) X Air changes per hour}}{\text{Capacity of one air ventilator at given height (CBM Per Hr)}}$$

- Here,

Volume(in cubic Meter) = L x B x H (All are in meters.)

Volume of air to be exhausted = Volume of Plant or Dept.(L x B x H)

- Air Changes per hour is taken from below table.

- Capacity of One Air Ventilator is taken from Table given below.

- Average wind velocity in coastal area is 4.5 meter / second and average wind velocity for non-coastal area is 3.5 meter / second.

TECHNICAL SPECIFICATION – 21”

*** Powder Coating is done with Epoxy Polyester Powders for excellent corrosion resistance**

Model	Standard
CEAV Diameter	**28 Inch (710mm)**
Neck/Throat Diameter	**21 Inch (530mm)**
No. of Vanes(Blades)	**36 Vanes**
Height	18 Inch (457 mm)
Base Ring	**Stainless Steel** (Jindal make)
Top Cover	**Stainless Steel** (Jindal make)
Top Plate MOC	Aluminium 1 mm Thickness Alloy 8011 H2
Vanes MOC	Aluminium 0.511mm Thickness (Hindalco make)
Bottom Ring	Aluminium 1.27 mm Thickness (Hindalco make)
Rotation	Pivot bush support w/o Bearing
Pointer MOC	10 mm Ø EN-8 with Electroplating
Supporting bush MOC	Derline black(Hardest PTFE grade)
Center Shaft	M.S. 20mm Ø with Nickle Plating
Inner Arms	M.S. with Electroplating
Outer Arms	M.S. with Electro Plating
Center Pipe	M.S. with Electro Plating
Nett. Weight	5.5Kgs (Approx.)
Packing	As per requirement
FRP Ventury Dome	Chopped Strand Mat reinforced with Polyester Resin (1.5 mm thickness)
Miscellaneous Items Like Nut, Bolt, Washeretc.	M.S. with Electroplating or Zinc plating or Galvanised

Velocity, m/s	Height, m			
	6	10	15	20
1	850	950	1100	1200
2	1200	1200	1400	1550
3	1500	1600	1750	1900
3.5	1650	1775	1925	2050
4	1800	1950	2100	2200
4.5	1950	2100	2275	2400
5	2100	2250	2450	2600

TECHNICAL SPECIFICATION - 24”

Model	Standard
CEAV Diameter	31 Inch (790mm)
Neck/Throat Diameter	24 Inch (610mm)
No. of Vanes(Blades)	42 Vanes
Height	17 Inch (460mm)
Base Ring	Stainless Steel (Jindal make)
Top Cover	Stainless Steel (Jindal make)
Top Plate MOC	Aluminium 1 mm Thickness Alloy 8011 H2
Vanes MOC	Aluminium 0.55mm Thickness (Hindalco make)
Bottom Ring	Aluminium 1.00 mm Thickness (Hindalco make)
Rotation	Pivot bush support w/o Bearing
Pointer MOC	6 mm Ø EN-8 with Electroplating
Supporting bush MOC	Derline black(Hardest PTFE grade)
Center Shaft	M.S. 20mm Ø with Zinc Plating
Inner Arms	M.S. with Electroplating
Outer Arms	M.S. with Electro Plating
Center Pipe	M.S. with Electro Plating
Nett. Weight	6.200 Kgs (Approx.)
Packing	As per requirement
Ventury Dome	Poly carbonate ventury dome (2.0 mm thickness) UV stabilized material with 50 micron UV Coated sheet
Miscellaneous Items **Like Nut, Bolt, Washeretc.**	M.S. with Electroplating or Zinc plating or Galvanised

Velocity, m/s	Height, M			
	6	10	15	20
1	950	1100	1300	1500
2	1600	1750	1900	2150
3	2300	2450	2600	2750
3.5	2750	2925	3075	3225
4	3200	3400	3550	3700
4.5	3600	3800	3925	4075
5	4000	4200	4300	4450

Types of Building	Air changes per hour
Auditorium	4-12
Assembly Hall	6-12
Boiler Room	15-60
Bakeries	12-20
Conference rooms	8-12
Commercial kitchens	10-20
Dye works	10-15
Engine Room	12-30
Electroplating shops	10-20
Foundry	10-25
Hospital sterilizing wards	4-6
Laundry	12-30
Laboratories	8-12
Light Factory	6-12
Heavy Factory	10-30
Paper Mill	8-30
Painting Shop	10-30
Packing Room	8-30
Restaurants	6-10
School rooms	2-4
Textile Mill	4-12
Transformer Room	12-30
Stores & Ware house	4-6

MAJOR CLIENTS:

- ABB
- ADITYA BIRLA
- APOLLO TYRES LTD.
- BLUE STAR
- GARDEN SILK MILLS LTD
- GODREJ
- GALLANTT METAL
- HINDUSTAN ZINC LTD.
- INDIAN OIL CORPORATION LTD
- JUBILIENT LIFE SCIENCES
- LUPIN
- MEGHMANI FINE CHEM
- NILKAMAL
- RELIANCE
- SUZLON
- TATA MOTORS
- WELSPUN

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