

Who would expect a plush futuristic high tech office to be plagued with a problem typical to process industries !!

That is exactly what the super modern IT/ITES service offices of 3G Global services, Mindspace located in the premium Malad area of Mumbai, were facing.

The buildings, in this area are primarily occupied by call centres of financial services, telecom services, etc. i.e. the service industry, operates 24 x 7.

Computer systems and servers were constantly breaking down disrupting work and resulting in loss of business. To add to the woes, people working in the offices were extremely uncomfortable leading to loss in productivity.

The Culprit : Built on landfill site, the building had a large open drain carrying untreated waste/sewage water to the back-waters of Arabian Sea running right next to it.

Thus, the whole area was blanketed with an obnoxious, foul odour. The odours were primarily due to the presence of hydrogen sulphide gas in methane, which is continuously generated due to the gradual degradation of organic material in the sewerage and the landfill. (Methane, on its own has no odour and thus, is not considered as a contaminant).

Facts of the Case

- Multi-storied buildings designed to meet current as well as future needs.
- Centrally air conditioned with AHUs on every floor.
- Chilled water fed AHUs with the supply air being ducted while the return air is free flow.
- Each AHU room has a fresh air intake point, provided with a damper, which sucks in outside fresh air due to strong negative draft present in AHU room.
- The HVAC design of almost all the buildings cater for a 10% fresh air intake.

Plagued with this odorous and corrosive problem, many offices in the building had the air analyzed by an independent testing service. The "Corrosion Classification Coupon" test, conducted showed a corrosion

potential @ 20,000 angstroms on a 30 day schedule, equivalent to 500 ppb clearly indicating GX Air Quality (severe category).

Extracts from the report showing approximate contamination levels of only the corrosive elements :

Pollutant	Maximum Concentration (in PPB)
Hydrogen Sulphide	500
Sulphur Dioxide	200
Oxides of Nitrogen	125
Chlorine	20

The above figures, though very authentic, did not indicate the actual levels of the problems as nature plays a big role in adding to the woes :

■ **Wind directions :** If the wind direction is towards the building from the contaminant generation zone, then the after effects is quite contrary to the one when it's been the other way round.

■ **Fluctuation in concentrations in gaseous contaminants :** Hydrogen Sulphide emission from the landfill peaks when the temperature and humidity is high and carries on till the land mass is relatively warm. Hence, the 'rotten egg' smell starts off by mid afternoon and continues till

late evenings. During the summer months, the emissions are significantly higher.

The Solution :

Having identified the culprit, the building management contacted the *Airgineers* at Bry-Air.

After studying the problem and space constraints, Bry-Air customized its **EcoScrub** Air & Gas Purification System to purify the fresh air coming into the building through the AHUs.

19 EcoScrub units have been installed on the terrace. These units treat 54000 cfm of fresh air. All gaseous contaminants are removed before it enters the AHUs.

A Breath of Pure Air !

Computers no longer break down due to corrosion. People are breathing pure and clean air. No odour. No corrosion.

The air quality is of G1 class (least corrosion rate) inside the facility.

Freeze in Mindspace commercial area

Ever since news on the noxious gas emanating from the untreated waste and garbage in the Mindspace complex in Malad has broken out, all lease sale deals in the upscale commercial area have halted. The C L F developed project, spanning more than 100 acres along the New Link Road, is all glass and steel today. Even when the low-lying land was reclaimed from the mangrove creeks in the 1998-2000 period, few knew it was wasteland gradually covered with garbage.

WHAT THE STUDY SAYS

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● The site in Malad, which houses Mindspace, was not treated before the construction of the building; therefore, solid waste got decomposed slowly and during decomposition, it generated toxic gases like sulphur dioxide, oxides of nitrogen, carbon monoxide, hydrogen sulphide, methane and mercaptans.

● These gases rise through crevices and corrode silver & copper parts in computers and air-conditioners.

● Since there was no post-closure management, the leachate generated from this waste contaminates groundwater as well as soil.

