



EMBED HYGIENE DEFENCE DIFFERENCE

Conducted Research on Embed Hygiene Defence
with proprietary key active SAN-AIR™ (V3R Formula)
to kill airborne viruses, mould and bacteria

Sydney Homeless Shelter



SYDNEY HOMELESS SHELTER

Powered by Embed Airborne Defence System

A Sydney Homeless Shelter supports the conduct of a study of the bio burden of the premises. This particular building is a 5 storey block in Sydney NSW.

The building houses about 400 homeless people every day, where these people do not necessarily accept to have a bath before using the dormitory.

The premises houses a basement area where receivable, food preparation and storage and other services functions happen. There is a ground floor housing reception, a communal dining area, office space and a hospital as well as several lavatory facilities.



Each floor has two HVAC Plant Rooms. The fresh air intakes are soiled by pigeon droppings and generally speaking positioned so they front high motor vehicle traffic roads.

This is an older building which houses a multitude of occupants, where the very nature of the occupancy and of the building's ambient control system assists the potential spread of microbial contamination.

The premises' IAQ is challenged by the occupants, so much so that the odour of the internal ambience masks the odour of the cooked food from the kitchen.

Conclusion from the study was that SAN-AIR™ does reduce air born contaminants. The key confirmation obtained from these results is the speed at which SAN-AIR™ controls mould counts.

There was positive feedback from employees noticing that improvement in their wellness matched the use of SAN-AIR™ in the premises.

This efficacy study also highlights that SAN-AIR™ helped to:

1. Address health and safety issues with respect to employees
2. Remove liability risk from the company due to poor IAQ affecting the health of the employees
3. Meet indoor air quality microbial count guidelines as per AS3666.2 ref HB32
4. Remove bad odours from the indoor environment

SCOPE OF STUDY

To use SAN-AIR™ to control the airborne counts measured in this building.

EQUIPMENT

- ▶ Biotest RCS Air Sampler
- ▶ Agar strips test kit
- ▶ Incubator at 30°C
- ▶ SAN-AIR™ blocks 500 gm and jars 75gm

EXPERIMENT

The SAN-AIR™ product relies on air contact time. There was a large amount of dust build up inside the ducts and outside the coils of the air conditioning unit, and this dust acts as a carrier for the mould and microbial spores. By allowing the ingredients of SAN-AIR™ to evaporate and become mixed with the air stream the same way as dust and microbes do, the SAN-AIR™ vapours come in contact with the mould or microbes. Absorption of the vapours occur on the dust particles also, increasing the contact time thus allowing SAN-AIR™ to inhibit growth of the organisms.

The Biotest RCS Air Sampler works on the impact principle, its function is to collect airborne micro-organisms quantitatively onto a culture medium. The air under examination is sucked into the sampler from a distance of at least 40cm by means of an impeller.

The particles in the air are impacted by centrifugal force onto a plastic strip containing a culture media. After collection the agar strips are incubated and the colonies counted.

Samples are collected for 30 seconds, the results as colony forming units (CFU) per cubic meter are calculated as

$$\text{CFU/m}^3 = \text{Colonies on Agar strip} \times 25$$

A count was recorded prior to introducing SAN-AIR™ in the air conditioning equipment.

Incubation was carried out at 25°C for 24 hours then 32°C for 48 hours. Colonies were counted and CFU/m³ calculated.

RESULTS



Corridor in front of lift



Lunch room



Dormitory

Date	Position 1 On floor outside lift well ground floor plant room location	Position 2 Lunch room	Position 3 Dormitory
10/05/2004	750 mould 450 bacteria	250 mould 50 bacteria	850 mould 250 bacteria
17/05/2004	100 mould 250 bacteria	200 mould 250 bacteria	300 mould 1450 bacteria
25/05/2004	50 mould 400 bacteria	50 mould 400 bacteria	100 mould 2650 bacteria
18/06/2004	< 25 mould 50 bacteria	< 25 mould <25 bacteria	100 mould 800 bacteria

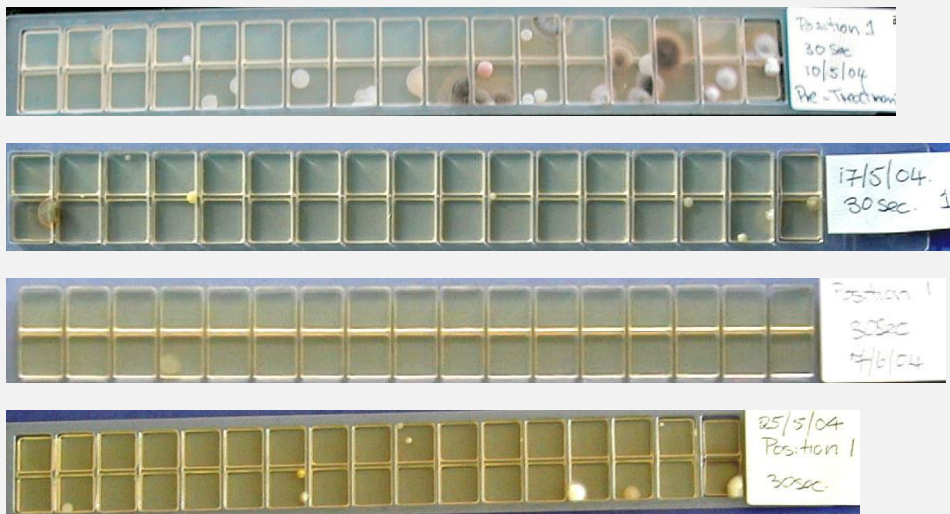
CONCLUSION

Fungal components were reduced quickly, showing SAN-AIR™ formulation to be effective in addressing a major source of contamination in air systems, and a major source of respiratory infection triggers.

Of note was that several employees approached us towards the end of the test period telling us voluntarily they were no longer getting chest infections from working at the Hostel.

APPENDIX - RESULTS

Corridor in front of Lifts



Lunch room results



Dormitory results

