CAMFIL **CASE STUDY**

Client:
Specialist Surgery

Location:
Belgium

Date:
March 2014

Sector:
Healthcare

AIR CLEANERS IN LASER EYE SURGERY

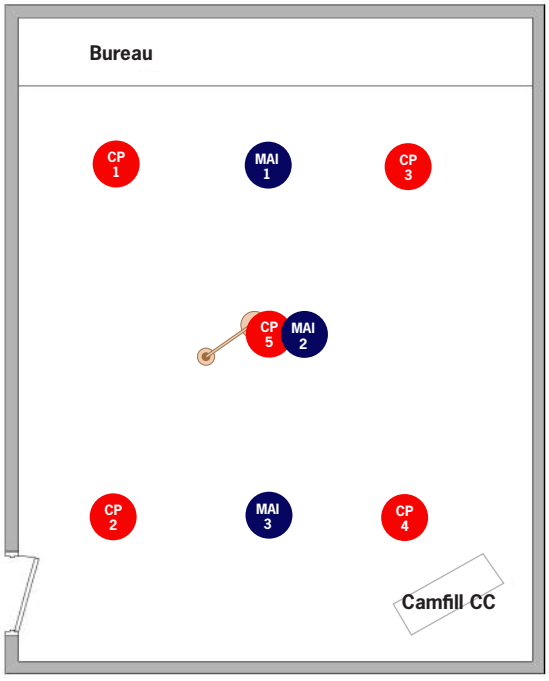
THERE HAS BEEN A RISE IN THE NEED FOR CONTROLLED ENVIRONMENTS WHERE MEDICAL PROCEDURES CAN BE CARRIED OUT WITH MINIMAL HEALTH RISK TO THE PATIENTS AND SURGICAL STAFF. LASER EYE SURGERY IS A CASE IN POINT AND THE NUMBERS AND VARIATIONS OF OPERATIONS HAVE INCREASED DRAMATICALLY OVER THE LAST FEW YEARS. EYES ARE ALWAYS VULNERABLE TO RISK OF AIRBORNE INFECTION ALONG WITH RESPIRATORY SYSTEMS.

Small operating rooms with clean filtered air are necessary. The air filtration will need to be a combination of filtered supply air from outside and re-circulated indoor air that has been filtered clean of contamination. Camfil make air cleaner units that satisfy this requirement as they can filter out both airborne particles and gas phase pollutants. The schematic diagram below shows air test types and positions in this clean room used for Laser Eyelid Surgery.

Use of Lasers for Eye Surgery can be a problem as the laser when used can produce a plume of particles that give cause for concern if inhaled. People in enclosed airspace will also emit bioparticles that can carry airborne infection so wearing protective masks and clothing are advised

For this set of tests 5 Particle Counts were taken with the Camcleaner CC in different positions along with active Microbial sampling in 3 positions. The Camcleaner enabled the room to meet ISO14644-1 Class 8 requirements and no microbial activity was recorded.

Room dimensions: Volume 52.35 (m3)
Surface area 21.28 (m2)



MSS 1 Microbial sampling - Contact plate
MSG 1 Microbial sampling - Glove print
MAS 1 Microbial sampling - Settle plates
MAI 1 Microbial sampling - Active sampling
CP 1 Particle counts
TR 1 Recovery Time

KEY TEST FOR TEST TYPE OPTIONS

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Eyelid surgery room		Eyelid surgery room		Eyelid surgery room	
ISO 8		ISO 8		ISO 8	
Particle Counts (ISO8) - CC pos6		Particle Counts (ISO8) - CC pos2		Particle Counts (ISO8) - CC pos4	
Maximum average for 0.5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:3.520.000 229.463 qty particles/m³	Maximum average for 0.5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:3.520.000 404.494 qty particles/m³	Maximum average for 0.5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:3.520.000 227.827 qty particles/m³
Maximum average for 5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:29.300 2.378 qty particles/m³	Maximum average for 5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:29.300 2.860 qty particles/m³	Maximum average for 5µm (m³/pt) in idle state	ISO 14644-1: ISO 8 max:29.300 2.284 qty particles/m³
UCL 95% ≥0.5µm in idle state	ISO 14644-1: ISO 8 max:3.520.000 218.039 qty particles/m³	UCL 95% ≥0.5µm in idle state	ISO 14644-1: ISO 8 max:3.520.000 404.220 qty particles/m³	UCL 95% ≥0.5µm in idle state	ISO 14644-1: ISO 8 max:3.520.000 227.745 qty particles/m³
UCL 95% ≥5µm in idle state	ISO 14644-1: ISO 8 max:29.300 2.299 qty particles/m³	UCL 95% ≥5µm in idle state	ISO 14644-1: ISO 8 max:29.300 2.907 qty particles/m³	UCL 95% ≥5µm in idle state	ISO 14644-1: ISO 8 max:29.300 2.188 qty particles/m³
Status	Compliant	Status	Compliant	Status	Compliant

THESE TEST REPORT RESULTS CLEARLY SHOW THAT AN ISO8 CLEAN AIR CONDITION CAN BE MAINTAINED ALONG WITH ABSENCE OF MICROBIAL ACTIVITY.

Eyelid surgery room	
Active Air Sampling (ISO 8) - Pt1	
Indicator germs for hospitalism germs	Critère client: Absence de germe Absence
Status	Target level
Active Air Sampling (ISO 8) - Pt2	
Indicator germs for hospitalism germs	Critère client: Absence de germe Absence
Status	Target level
Active Air Sampling (ISO 8) - Pt3	
Indicator germs for hospitalism germs	Critère client: Absence de germe Absence
Status	Target level

It is recommended that the CamCleaner unit is run for 1 hour before procedures during procedures and I hour thereafter.CamCleaners can be used as a freely mobile device in recirculation mode or fixed in position having mixed intake with recirculation and outside air filtered together.It is desirable to run operating rooms with a slight positive pressure air if possible.

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MIXED INTAKE RECIRC AND OUTSIDE