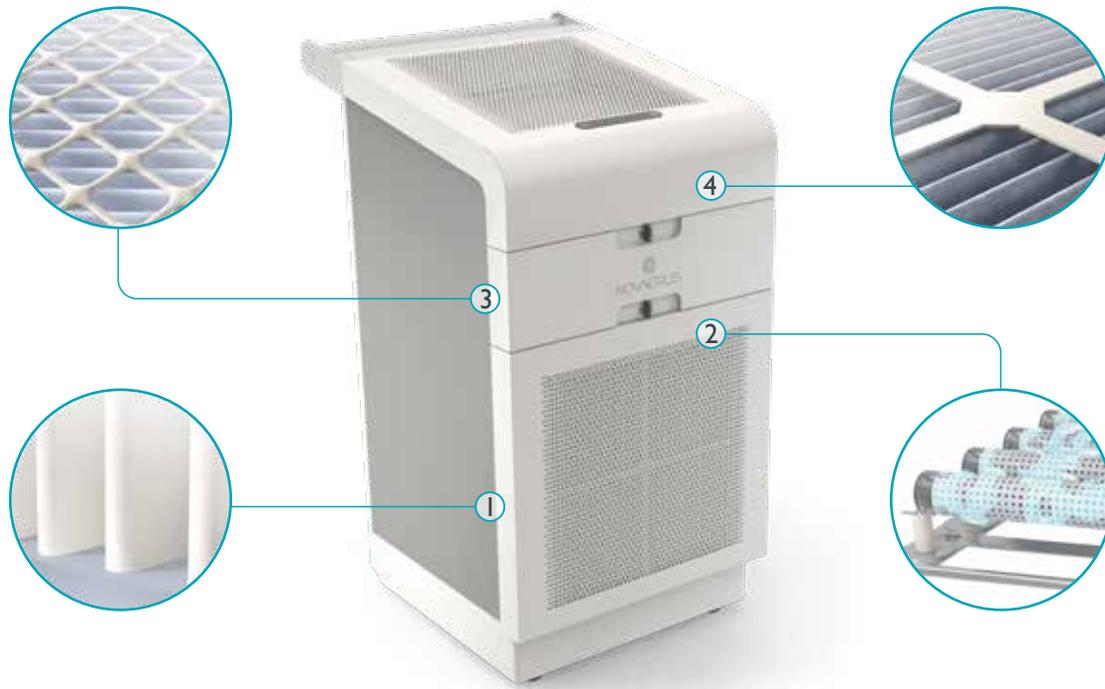




## Defend I050 Applications



The Defend I050 combines patented active purification plasma technology with a triple-stage Camfil® filter system to provide non-chemical air dis-infection and particle-reduction for multiple applications. It is safe for use around vulnerable populations and highly effective at reducing infection, mitigating unpleasant odours, and reducing environmental contaminants in indoor areas that need to remain inhabitable during construction, restoration, or remediation projects.



## NOVAERUS DEFEND I050 SPECIFICATIONS

Voltage: 230 VAC / 50Hz  
 Fan settings: 5 speeds  
 Energy use: 120 - 310 W  
 Air flow: 181 - 906 m<sup>3</sup>/hr  
 Dimensions: 50 × 100 cm  
 Weight: 35 kg

### ① G4 PRE-FILTER

30/30 high efficiency pleated panels  
 water resistant, 3 month life span  
 400×400×50 mm

### ③ HI3 HEPA FILTER

Very high efficiency, individually tested  
 12 month life span\*  
 MGA 400×400×110 mm

### ② PLASMA COILS

6 active purification plasma coils  
 produce low-energy plasma field

### ④ G4 CARBON FILTER

High efficiency pleated panels  
 moisture resistant,  
 12 month life span\*  
 400×400×50 mm

For more information or to order:

[www.novaerus.com](http://www.novaerus.com)

[info@novaerus.com](mailto:info@novaerus.com)



## OPERATING THEATRES

### Reduce Risk of Surgical Site Infections

Surgical site infections (SSIs) are caused by bacteria that get in through incisions made during surgery. SSIs lead to more than 90,000 deaths each year, 50% of which are estimated to be preventable. One of the main sources of contamination is particles released into the air by operating room personnel. Small microorganisms and viruses “ride” on these particles and enter through open wounds or inhalation leading to disease and infection.



#### Risk is elevated when:

- HEPA filtration is not installed in the HVAC system
- Ventilation is inadequate (<15 total ACH)
- HEPA filters are installed but not regularly replaced
- HVAC air vents are not regularly cleaned
- Reliance for infection control is on laminar air flow systems



#### Novaerus Defend I050:

- Rapidly restores a safe operating environment
- Adsorbs odor from laser plumes and surgical smoke
- Augments HVAC systems without adequate airflow
- Easily moved by staff between operating theatres



## PATIENT ROOMS

### Reduce Risk of Outbreaks & HAI's

Human and environmental hygiene is essential to reduce the risk of infection for patients, hospital staff, and visitors to patient rooms. Manual cleaning and disinfection can have limited effects due to the ongoing presence of pathogens of concern in the hospital environment. Many hospitals are now looking to adjunct technologies to augment standard protocols for cleaning and surface disinfection.



#### Risk is elevated because:

- Staff and visitor traffic is heavy
- Patients are vulnerable to secondary infections, particularly pulmonary, from airborne pathogens
- Unpleasant odors are generated from medical procedures, cleaning chemicals, or patients



#### Novaerus Defend I050:

- Rapidly and safely disinfects patient rooms
- Easily moved by staff between patient rooms
- Adsorbs and neutralizes unpleasant odours
- Five fan speeds to allow noise-level adjustment
- Augments thorough room disinfection between patients



## INTENSIVE CARE UNITS

### Reduce Risk of Cross-Contamination

ICU and oncology patients are at heightened risk for healthcare-acquired infections due to the severity of their illness. ICU patients typically have a compromised immune system, long length of hospital stay, several caregivers performing multiple tasks, and a high quantity of invasive devices being used. All of these factors contribute to a greater potential for contact with biological or environmental contamination.



#### Risk is elevated when:

- High number of invasive devices in use
- ICUs are occupied by multiple patients
- ICU patients are immuno-compromised
- Staff and visitor traffic is heavy
- Air flow is non-uniform in "dead zones" like entries, exits, and sink areas



#### Novaerus Defend I050:

- Rapidly and safely disinfects ICUs
- Eliminates dead zones in ICU layout
- Safe to use around vulnerable patients
- Easily moved by staff to point of care



## EMERGENCY ROOMS

### Reduce Risk of Infection & Discomfort

Emergency rooms are high-risk areas for infection due to the high volume of infectious and vulnerable patients who can be waiting for treatment in close proximity for several hours, often in confined and poorly ventilated spaces. Not only does this environment heighten the risk of infectious diseases being spread to healthcare personnel and other patients, but also increases the chances of acquiring new infections associated with treatment.



#### Risk is elevated because of:

- Close proximity of infectious patients
- Frequent exposure to outside air
- High traffic of untreated patients who may be carriers of viruses and disease
- Lower levels of HVAC ventilation



#### Novaerus Defend I050:

- Safe and effective for large, open, crowded spaces
- Balances air ventilation rate with particulate reduction and/or odour mitigation
- High air flow for large open spaces
- Five fan speeds allow noise-level adjustment



## GENERAL WARDS

### Reduce Risk of Outbreaks & HAI's

The risk of contamination can be several times higher in multi-bed wards compared to single-bed rooms as bacteria originating from one patient can spread to others occupying the same space via air currents. Even with rigorous hand-washing between patients, bacteria can be picked up and spread between patients by healthcare workers from multiple surfaces throughout the ward.



#### Risk is elevated because of:

- High patient-bed turnover
- High visitor and staff traffic
- Varying room size/layouts create dead zones of poorer air quality
- Multiple patients occupying same ward



#### Novaerus Defend I050:

- Eliminates dead zones in any ward layout
- Adsorbs and neutralizes odors
- Five fan speeds allow noise level adjustment
- Safe to use around vulnerable patients
- Easily moved by staff to specific points of care



## CONSTRUCTION ZONES

### Reduce Risk of Illness & Discomfort

Construction or remodeling work, particularly in older buildings, can release fungal spores from *Aspergillus*, a mould found commonly in many indoor environments. *Aspergillus* is particularly dangerous if inhaled by individuals with weakened immune systems and damaged lungs. Healthcare-associated infections (HAIs) due to *Aspergillus* can occur as a result of hospital construction, maintenance, demolition and renovation.



#### Risk is elevated because:

- VOCs including smoke and mould can permeate into occupied areas
- *Aspergillus* spores can be released from ceilings, walls, and floors
- Strong odours from painting, flooring and cleaning can permeate into occupied areas
- Air filters may be clogged and carpet can be contaminated



#### Novaerus Defend I050:

- Allows areas post-renovation or construction to be occupied more quickly
- Reduces VOCs at the source of contamination
- Kills and traps aspergillus spores and dust
- Mitigates fungal contamination, in addition to bacteria and viruses
- Absorbs and neutralizes strong odours



## IN VITRO FERTILIZATION (IVF) LABS

### Improve Embryonic Development

Even when IVF labs follow strict laboratory practices, airborne pathogens can negatively affect embryonic development. Indoor contaminants such as VOCs and microbes, and outside air pollution from road work, traffic, construction and insecticides can all lead to fluctuations in IVF success. Pollutants can settle on surfaces and dissolve into the aqueous solutions and oil overlays where fragile embryos are cultured.



#### Risk is elevated because:

- Lab is located in urban environment
- Lab does not have VOC filtration
- Furniture, cleaning methods and clothing are not clean room approved
- Walls and surfaces are made from porous materials
- Ducts and pipes are exposed to dust
- Older labs are renovated



#### Novaerus Defend I050:

- Rapid non-chemical air disinfection
- Renders airborne bacteria non-viable
- Augments HVAC filtration
- Eliminates VOCs
- Safe to use around staff



## SENIOR LIVING

### Reduce Risk of Outbreaks & HAI's

The elderly are a vulnerable population and more susceptible to illness than younger adults. Pneumonia and lower respiratory tract infections remain the leading cause of mortality in nursing homes and airborne transmission is responsible for 20% of infections. Outbreaks in senior living facilities can not only be dangerous but also costly in staff absenteeism, overtime and closures.



#### Risk is elevated because:

- Elderly are a vulnerable population
- Dust mites, pollen, bacteria and mould spores spread through cleaning activities
- Seasonal ailments such as influenza and allergies can cause outbreaks
- High visitor and staff traffic



#### Novaerus Defend I050:

- Prevents outbreaks by deactivating viruses at the DNA level
- Allows areas post-patient turnover to be occupied more quickly
- Reduces indoor allergens and bacteria
- Contains and eliminates pathogens in high traffic areas



## CHILDCARE AND SCHOOLS

### Reduce Risk of Illness & Absenteeism

Children together in small spaces, such as classrooms and childcare centers, allows for the rapid spread of bacteria. Children breathe in more oxygen relative to their body weight than adults, making them vulnerable to airborne illness. Many schools and childcare centers have handwashing and surface cleaning policies, but they do not account for harmful pathogens that can remain airborne indefinitely.



#### Risk is elevated because:

- Confined spaces with children in close proximity
- Allergens can induce asthma, the leading cause of student absenteeism
- Exposure to VOCs, such as formaldehyde, cause eye irritation, respiratory symptoms, nausea, dizziness and headaches
- Children have less immunity to illness



#### Novaerus Defend 1050:

- Rapid disinfection of large open spaces
- Reduces indoor allergens
- Safe to use around children
- Eliminates VOCs emitted by furniture, paint, and cleaning chemicals