

Introduction to Rensair Smart Demand Controlled Ventilation (SDCV). Rensair is a leader in indoor air quality and has a long history of providing solutions to Scandinavian healthcare facilities. Rensair's newly developed SDCV offering is a new, differentiated way to think about building ventilation; delivering excellent air quality while reducing ventilation related energy spend by >40%.

Rensair is currently implementing the SDCV solution with a number of known institutions including [AIG](#), [OCS](#) and [Withers](#). Within Education, we are beginning trials with [Imperial College London](#) and [University College Cork](#) where our calculations show high potential energy savings.

Last week, we delivered an energy reduction profile for a London site located in Kings Cross which is set across four floors. We demonstrated that by part-substituting existing ventilation with Rensair equipment the following metrics were achieved:

- 50% reduction of the building's carbon footprint every year
- 332,883 KWh saved annually
- A substantial net reduction in annual operating expenditure from month one
- Excellent air quality, preventing the spread of airborne bacteria and viruses thereby contributing to fewer employee sick days and improved productivity

In the US, Rensair is currently seeking partners willing to participate in a trial at their facilities to demonstrate the indoor air quality improvements and energy savings potential for their specific location. The implementation is at no cost to the partner (fully funded by Rensair). See below an explanation of how SDCV works and an outline of how we propose to structure a trial.

Rensair SDCV:

- **Large Energy Savings on Ventilation with Immediate ROI:** Rensair purified air consumes 9 times less energy per f3 delivered vs mechanical ventilation. As a result, we have shown that we reduce the overall energy consumption of a building's HVAC system by >40%. This is done by integrating with Building Management Systems/BAS, and allowing for dynamic optimisation of air volumes, based on Indoor Air Quality readings.
- **New IoT Connected Offering:** The world's most advanced air quality management technology. Leveraging decades of experience in air purification within healthcare, Rensair is proven to deliver high volumes of clean air effectively in a room. New features include:
 - **Built-in IAQ sensors:** High quality IAQ sensors from Sensirion are built into each device, allowing for indoor air quality monitoring and data visualization/analytics.
 - **IoT connectivity:** LTE connectivity to cloud based IoT software platform with a REST API.
 - **Auto-affecting assets:** As devices simultaneously monitor and improve indoor air quality and adjust to changing environments. The devices can automatically ensure compliance with IAQ standards, like for instance WELL or LEED.

- **Better performance than Demand Controlled Ventilation (DCV):** As the Rensair hardware is an alternative source of clean air, we will always be able to perform better than current DCV solutions. We call this "Smart DCV".
- **Immediate positive ROI:** The immediate energy savings are >2x larger than the standard monthly subscription fee of Rensair equipment, delivering a positive ROI from day one.
- **Improved IAQ:** IAQ is improved as external pollutants are removed from the air by the Rensair air purifiers. Benefits of better indoor air quality include higher productivity and lower absenteeism.
- **Who we are:** The patented Rensair air purification technology has been used in healthcare facilities for two decades and has very comprehensive independent validation confirming effectiveness. By combining HEPA filtration and UVC light, Rensair captures and kills airborne pathogens, including the coronavirus family, removes airborne particulate matter (PM), VOCs, molds, yeasts, smoke, allergens and odors, all with an efficiency of >99.97%. Mold, for example, is very hard to remove and ensure that its allergenic properties are inactivated but Rensair is proven to achieve this.
 - Clients include the UK National Health Service, PepsiCo, Disney, GlaxoSmithKline, Morgan Stanley
- **Efficacy:** Rensair has been tested and proven by leading laboratories and research organizations, including Eurofins, Oslo University Hospital, The Danish Technological Institute, the University of Liverpool, Indoor Science and the NHS.
- **Holistic IAQ solution:** By removing airborne pathogens, but also other airborne pollutants like particulate matter, VOCs, and allergens, Rensair offers a holistic solution to improving Indoor Air Quality (IAQ), not just reducing the risk of airborne disease transmission.

Rensair trial structure:

Objective:

Demonstrate that air quality and energy savings requirements are met in a client space. Rensair will work with the building engineers/facilities team to provide upfront calculations and estimates for both metrics.

Requirements:

For a trial, we would use a mechanically ventilated space where:

1. The Air Handling Units (AHUs) are used as the heating/cooling source of the space
2. Ability to control and vary the outside air intake volume of the AHUs (VSD control)
3. Ability to measure the energy consumption of the AHUs

Implementation:

We recommend to execute the trial in two stages:

Stage 1 - Without data integration (analogue Rensair devices):

1. Measure current energy consumption at current ventilation rate (assuming 10l/s/p) and measure air quality for baseline results using air quality sensors
2. Install the Rensair devices
3. Reduce AHU air volume (likely reduce to 5l/s/p) and substitute that air volume with air purification (5l/s/p) meaning total air volume remains at 10l/s/p
4. Monitor air quality and energy consumption

Stage 2 - With data integration (Rensair IoT): follow the same principle as above but balance air volumes dynamically based on air quality data. This will unlock greater savings than the setup above.

Please get in touch with any questions.

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