



Destratification is recommended
by The Carbon Trust*

AIRIUS AND COOLING

Save 20-50% on cooling costs with
Airius - **The world leaders in
Destratification technology**



Web: www.airius.co.uk

Tel: 00 (+44) 0 1202 554200

Architectural Products Magazine's
PIA'14
product innovation awards

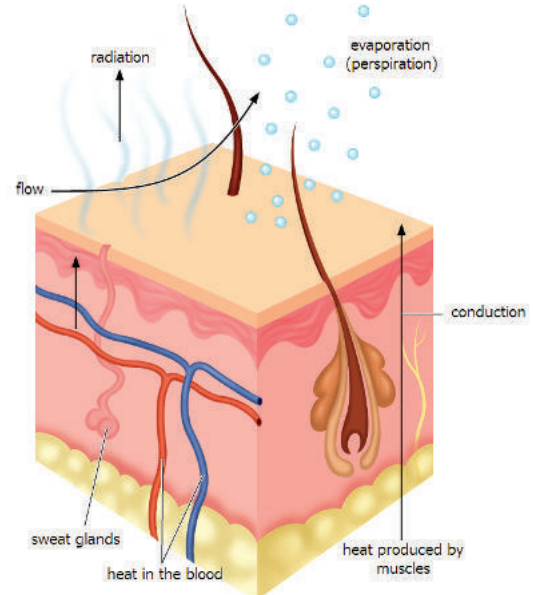


Airius & Cooling

Many Buildings suffer from overheating. This can result in a whole range of negative impacts on occupants - *poor performance, lethargy, absenteeism etc.* and the building itself - *condensation, mould, slip hazards etc.*

The first, fastest and most cost-effective way to resolve overheating in buildings is to address the movement and circulation of air. Low levels of air movement result in poor circulation and stuffy, uncomfortable, overheated environments.

Managing increased air movement not only provides cheap comfort cooling, but also accelerates evaporation, eliminating humidity issues.



Airius Cooling Benefits:

- **80% Cheaper than Air-Conditioning.**
- **Environments feel 2 - 3°C cooler with every m/s (metre per second) of airflow.***
- **Condensation reduced or eliminated.**
- **Minimal running costs (from £6/pa).**
- **Eliminates hot or cold spots.**
- **Ultra-quiet avoiding noise disturbance.**
- **Latest fan circulation technology (columnar-laminar flow) removes draught disturbance.**
- **Rapid ROI - Usually 12 - 24 months.**
- **25-50% reduction in carbon emissions.**
- **Works alongside ALL types of HVAC systems.**
- **Eligible for carbon reducing grants/loans.**

The body cools itself in two ways both Evaporative and Conductively.

Conductive Cooling is a process where the human circulatory system carries core heat to the skin's surface which is carried away as air passes over the skin.

Evaporative Cooling the body is when moisture is secreted through sweat glands in the skin (Perspiration). Air movement evaporates this moisture into vapour. This process of evaporation requires energy taken in the form of heat which is why skin is left feeling cooler.

Which is why when someone stands in front of a fan they will cool more rapidly than in still air and why a gentle breeze on a hot day can mean the difference between perfect comfort or overheating.

Air movement provides an extremely cost effective and often overlooked alternative solution to the problem of overheating and/or humidity in buildings. Currently the most popular solution is air conditioning however, air conditioning is expensive to install and run and creates large amounts of carbon. Even now with many different types of systems on the market research still shows a significant proportion of people dislike and express discomfort in air conditioned environments.

The Airius system is the world's leading destratification and air circulation fan system which uses ductless technology to manage and circulate airflow within buildings for comfort and cooling at a fraction of the cost with none of the disruption or discomfort associated with air conditioning systems.

Cooling With Airius

Airius Destratification fans should be considered as an important addition to your new or existing Air Conditioning systems.

Designed to be installed as a stand-alone product, Airius fans will improve the performance of all types of Air Conditioning systems by moving the manufactured cool air they produce more efficiently throughout an interior space to balance temperatures which reduce energy costs, dramatically improve internal environments and even downgrade Air Conditioning equipment requirements.

Airius achieve these impressive results by moving chilled air slowly and methodically which eliminates cool air from collecting at low points at floor level and eradicates temperature differentials within all types of interior spaces such as offices, retail stores, manufacturing, warehouses and public buildings, schools and sports facilities etc.

Easy to fix and operate with no maintenance required, Airius fans can be installed into either suspended or open plan ceilings to blow a near silent slow moving column of air to the floor.

When this air column reaches the floor, it radiates out 360° until it hit a vertical surface and returns vertically back up towards the ceiling continually entraining onto the descending column to create millions of tiny vortices which balance the temperature floor to ceiling; any warm air in the ceiling will soon mix with the cooler air to quickly achieve set temperatures.

Airius, The World experts in destratification fan technology have the largest range of destratification fans available to balance temperatures for all types of building designs and uses with ceiling heights from 2.5m to 35m, offices to aircraft hangars!

The number and model of Airius fan units required for a specific building is identified for installation based upon ceiling height, floor area and layout. All Airius fans have minimal single phase power requirement from between 12 to 400 Watts depending on the model and can be simply connected to an on/off switch or speed controller.

Benefits Include:

- Airflow promotes cooling significantly.
- 80% Cheaper than Air-Conditioning.
- Condensation reduced or eliminated.
- Minimal running costs (from £6/pa).
- Eliminates hot or cold spots.
- Ultra-quiet avoiding noise disturbance.
- Latest fan circulation technology (columnar-laminar flow) removes draught disturbance.
- Rapid ROI - Usually 12 - 24 months.
- 25-50% reduction in carbon emissions.
- Works alongside ALL types of HVAC systems.
- Eligible for carbon reducing grants/loans.

Features Include:

- 120 Day money back guarantee.
- 5 Year warranty.
- Excellent evaporative cooling capabilities.
- Very low energy consumption.
- Controllable and directional airflow.
- Speed controllable.
- Lightweight, simple to install & relocatable.
- Reliable, designed for 24/7 operation.
- No structural building requirements.
- No maintenance programmes.
- Non-Turbulent air flow.
- Proven in all types of applications.

Managing Air-flow for Cooling

Poor thermal levels and especially overheating not only affects comfort but also has hidden impacts both directly and indirectly which can severely effect a building's efficiency and productivity of its occupants.

Overheating can impact heavily on:

- Staff Productivity, Morale & Absenteeism
- High Utility Costs & Demand on Facilities
- Increased Accidents
- High Insurance Premiums
- Customer Discomfort & Inconvenience
- Reduced Personnel Concentration Levels
- Employee Absenteeism
- Inefficient Management

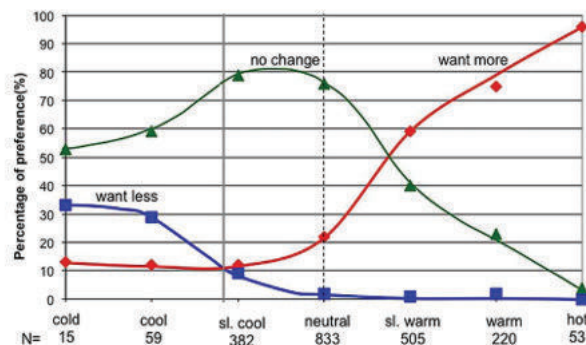
As a result, there have been a huge amount of research documenting the benefits of air movement as the most cost-effective method for cooling in buildings. Evidence also shows that with any cooling requirement, air movement is the first place to start when assessing solutions to resolve overheating issues.

Thermal Comfort and Air Movement*

Professor Richard Aynsley (UNESCO Professor of Tropical Architecture and Director of The Australian Institute of Tropical Architecture) studied the value of air movement to improve thermal comfort.

He found that even just a slight increase in air movement (velocity), can have a profound effect on comfort. With every m/s (metre per second) of airflow environments feel 2.3°C cooler.

"Air movement of 3 m/s on a 35°C day with 70% RH, can offer a 7°C cooling effect reduction. That means the air flow will make it feel like its 28°C not 35°C."



Air movement preference versus thermal sensation
Source: Zhang et al. (2007)

When:

Air temperature:	35°C
Mean radiant temperature:	35°C
Relative humidity:	70%
Metabolic rate:	1.0 met
Clothing Insulation:	0.22 clo
Air velocity: 0.15 m/s	= 36.3°C
Air velocity: 3 m/s	= 29.3°C

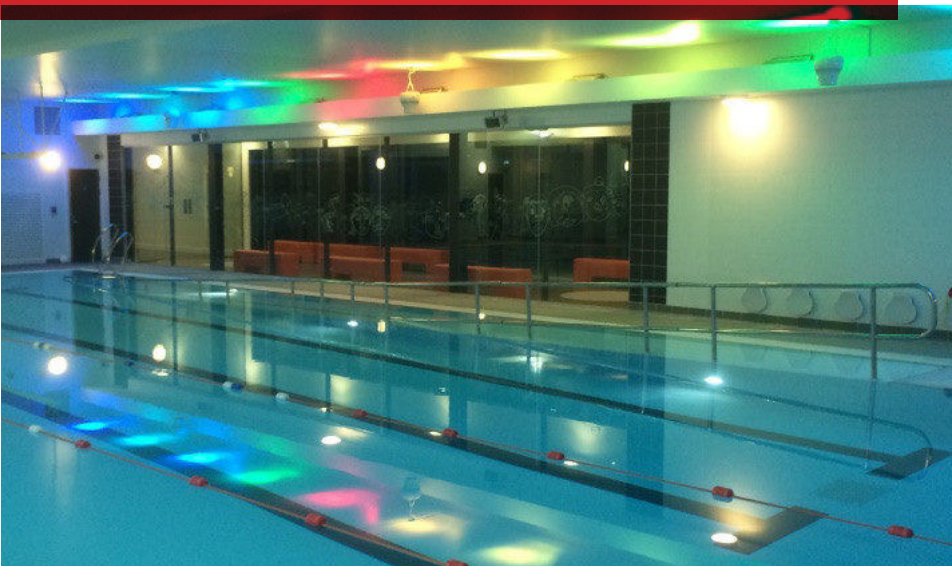
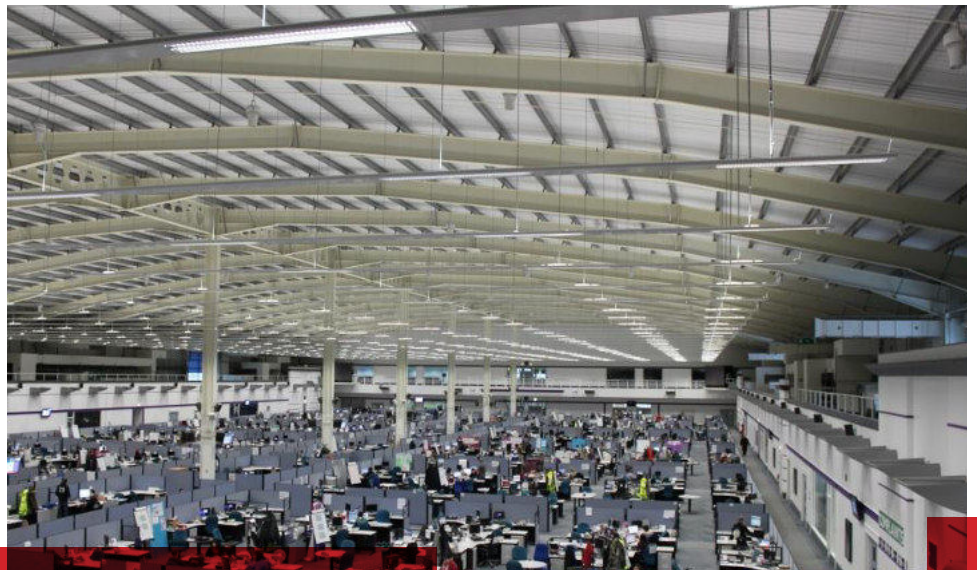
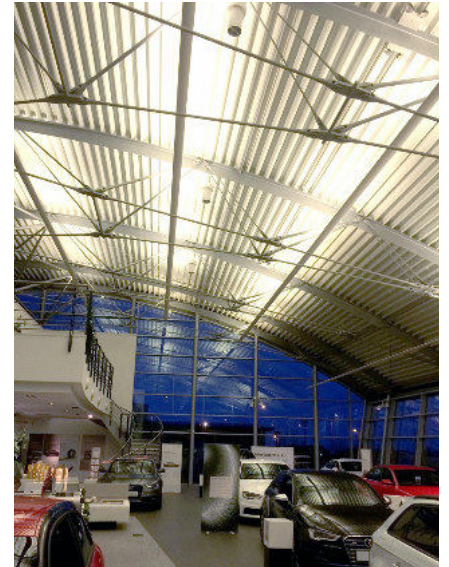
The cooling effect of increasing a uniform air speed from 0.15m/s to 3.0m/s can be seen to be 7°C.

Air Movement Vs Thermal Sensation

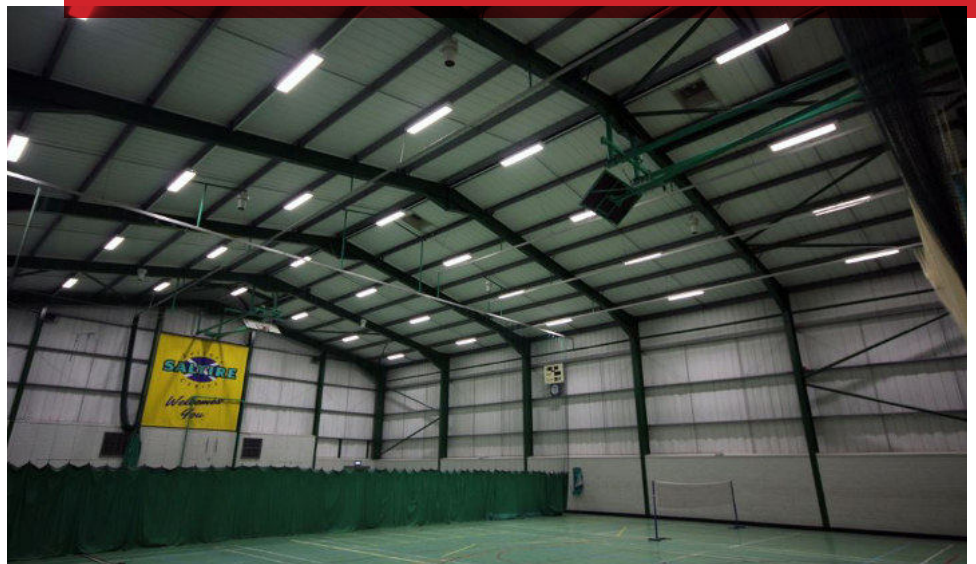
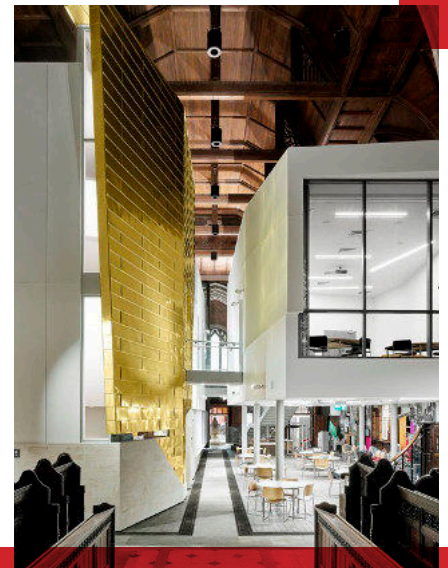
In 2007 Hui Zhang, (Specialist in Human Thermal Comfort at the Center for the Built Environment - University of California), carried out a study on 'Air Movement Preferences Observed in Buildings.'

The outcome of this study showed that 96% of people want more air movement when they begin to overheat and even when there is no cooling requirement, people welcome air movement.

Installation Images



Installation Images



Client Testimonials



“

The temperature within the hall has stabilised dramatically

”

"After fitting the Airius fans at a local Sports Centre we have noticed that **the temperature within the hall has stabilised dramatically.**

We carried out remote temperature readings before and after installation and after the installation, we noted that the variance in temperature over a 24 hour period was between 1 and 1.5 degrees, this is a significant improvement over previous findings. In addition, feedback from Centre users has been very positive with a number of **customers commenting on the “freshness” of the internal environment.**

We have been requested by the Centre Manager to **reduce the set point temperature in the Hall by 2 degrees. We've also been asked by the Centre Manager to switch the heating off 2 hours earlier than normal.**

Duncan A. McLaren BSc, PgDip, AIEMA - Senior Energy Technician

“

A saving of over 70% on our cooling costs. The system has far exceeded our expectations.

”



"We are very impressed with the results Airius fans have achieved in our ten pin bowling centre at Nantgarw in South Wales.

The atmosphere inside has been greatly improved **reducing staff & customer comfort complaints by 90%.** They have also allowed us to increase our thermostats from 19°C to 23.5°C **resulting in a saving of over 70% on our cooling costs.**

The Airius system has far exceeded our expectations & will be standard equipment for all our 18 bowling centres in the UK."

Ben Carne - Energy Manager



“

Its reduced our heating costs by an impressive 25% in the swimming pool

”

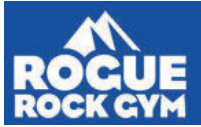
"We installed Airius destratification fan units into 2 sports halls and the swimming pool area at the Sixmile Leisure Centre, Newtownabbey.

These units have made a vast improvement to the internal atmosphere within the buildings and the public who use the facilities find the air quality greatly improved for sporting activities. The heating systems come on much less often and the **complaints from swimmers about the warmth in the swimming pool area has reduced by 90%.**

We have found **the Airius units have reduced our heating costs by an impressive 25% in sports halls and swimming pool area; the thermostat in the swimming pool building has also been turned down 2°C!!!"**

James Dunn - Facilities Manager

Client Testimonials



“ They are safe, quiet and energy efficient and allow us to save on our air-con costs ”

"I would like to compliment your company on a fine product.

We use your Airius System in our 6,000 sqft. rock-climbing gym. Rock-climbing gyms present a unique challenge when thinking about ventilation. Climbers do not want to climb up into a hot area, whilst customers at the bottom of the “rock” still need to be kept warm. We needed warm air at ground level with no increase in temperature as the climber ascends the wall.

The Airius system is perfect in this application.... they are safe, quiet and very energy efficient and allow us to save on our air conditioning costs."

Matt Lambert - Owner

“ I would highly recommend Airius destratification fans ”



"Since the installation of the units **the air quality and temperature has vastly improved and people are now feeling a lot more comfortable in the environment.**

I would highly recommend the Airius destratification fans as they have been the perfect solution to our problem."

Tom Lyons - Knowsley Council



“ The objective was air quality improvements for a public swimming pool ”

"The objective was air quality improvements for a public swimming pool at Loanhead Leisure Centre.

Installing the Destratification Fans was a first for us and addressed a need to improve the working environment of the pool-side staff. **The fans were straightforward to install** through our M&E contractor A McKay & Co.

Now that the system is running in co-ordination with the air handling plant this has been achieved successfully."

David Hamer – Maintenance Surveyor

“ Our customers have commented on the improvement ”



"I would like to thank the Airius team for being very helpful and informative.

The Airius units have provided us with a sports hall that is now comfortably heated for the winter months and our customers have commented on the improvement."

Lynne Galsworthy - Business Manager

Selected Client List



Audi



Fitness First



Harbour Club



CITROËN



Unilever



WARWICK
BOAT CLUB



Selected Client List



Genentech Inc. - Warehouse

Genentech
IN BUSINESS FOR LIFE

Genentech Inc. contacted Airius to address temperature regulation problems in their new pharmaceutical warehouse, where the existing HVAC system was not able to reach FDA regulations.

Following installation of the Airius system the warehouse passed all FDA validation testing floor to ceiling, wall to wall. It also opened up Billions of Dollars worth of additional inventory space.



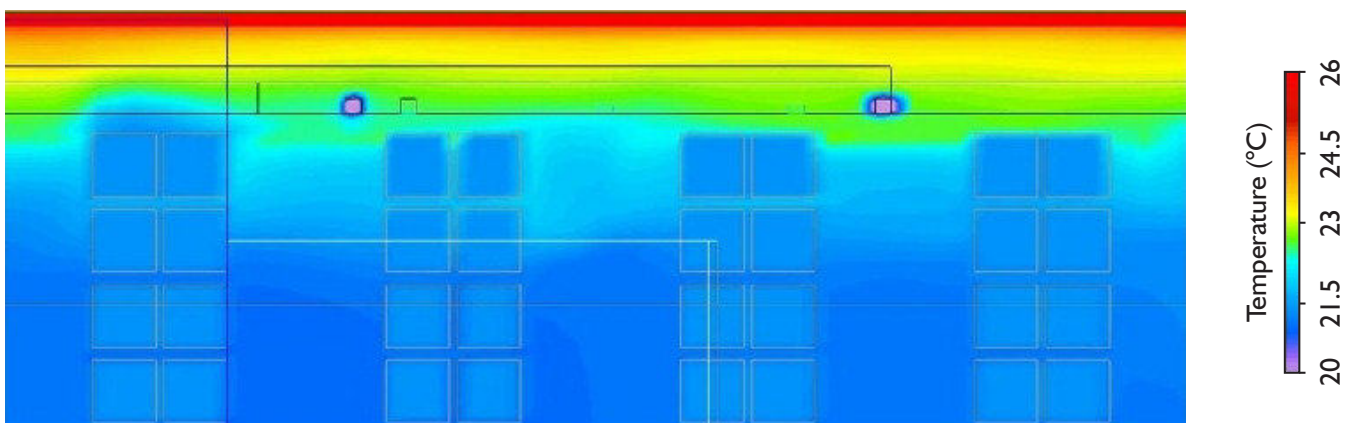
Key Points:

- **Stratification reduced from 5°C to 1.5°C.**
- **Billions of Dollars of inventory space reclaimed.**
- **Used to destratify temperature regulated cooled air facilities.**
- **Facility passed FDA regulations with Airius.**
- **System = 50 x Airius Model 25's.**
- **Floor Area = 4,600m².**

The accompanying thermal images were developed from the temperature controlled warehouse of a major pharmaceutical company. The company's new 50,000 sq ft. warehouse facility in Louisville, KY did not pass the Food and Drug Administration's required Temperature Validation Tests with the originally designed HVAC system.

As can be seen in the 'Before Airius' image without Airius fans, the top levels of the pallet racking were exposed to 22.5°C air, too high a temperature for the inventory.

BEFORE AIRIUS

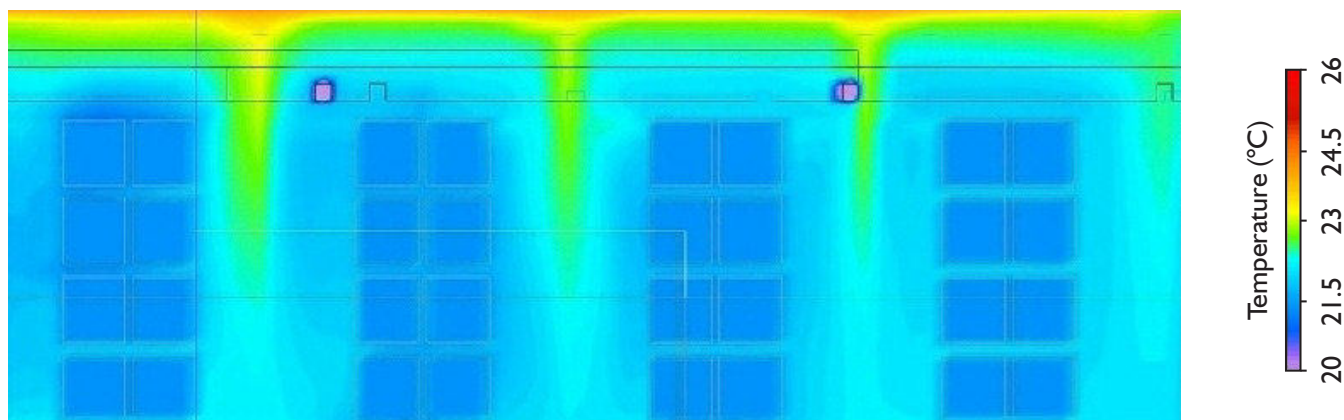


This was a major problem; the facility was due to open and the space was badly needed. The HVAC contractor had tried everything they could think of and had no answers for the problem, short of starting over with a re-designed system. A senior facility engineer suggested the use of Airius for this application. The HVAC Contractor was very sceptical the devices could raise the cold air levels and maintain them. Airius personnel were called in to review the situation and it was determined for this large application that 50 Airius model 25 destratification fans would be required and were air freighted at the customer's request within 2 days.

The facility quickly agreed and the installation was a success. In spite of the fact that the destratification fans were originally developed to de-stratify heated air, and the fact that cold air naturally sinks, it can be seen by comparing the 'Before Airius' image to the 'After Airius' image that the use of the Airius fans has balanced the level of cooler air in the room to the point where the upper rack levels are no longer in jeopardy – Thermal Equalisation!

The elevation graphic shows a complete equalisation of temperature around the pallet racks supporting literally billions of dollars of inventory from floor to ceiling meeting FDA regulations and approval.

AFTER AIRIUS



This Airius installation allowed the warehouse to pass FDA Validation Testing and helps ensure the safety of the products for the manufacturer and the consumer. It has been reported to Airius that the temperature variance from the bottom of the 18' racks to the top with the fans running over the last year is only 1 to 2°C.

This case is a graphic example of how the Airius destratification systems can work in air conditioned environments as well as heated environments and testifies as to how well they truly do equalise nearly 100% of the air temperature in a given space.

The results of this original installation; Airius is now specified in the next two warehouse projects, one in 2007 and another in 2008, for this same pharmaceutical company.

Newmarket Motors - Cork Showroom



Newmarket Motors

Newmarket Motors installed the Airius system to address unbalanced temperatures in their Cork showroom. Conditions were too hot on the first floor and too cold on ground floor.

Following installation this problem was eliminated, with the added benefit that the workload from the AC system was highly reduced.

Key Points:

- **Approx. 12°C heating reduction.**
- **A/C settings reset from 'high' to 'low'.**
- **Heating reduced by approx. 24 hours per week.**
- **Conditions resolved by recirculating 1st floor high temperatures down to ground floor level where conditions were too cold, thus also solving ground floor low temperature problem.**



They needed to resolve the uncomfortably high temperatures experienced on their first floor and the uncomfortably low temperatures found on their ground floor, which were creating unsuitable conditions for their staff to work in.

The Airius destratification system was simple and quick to install and not only resolved the temperature imbalance, but also highly reduced the output, workload and operating times required from the A/C system offering significant savings on their energy costs.

Testimonial

"The owner had expressed he was having problems with uneven temperatures between the upstairs offices and downstairs offices and showroom. Staff upstairs were too hot and the staff downstairs were working with their coats on at times. The Showroom has 3 sides of glass, floor to roof. They have 4 combined heating/cooling units with the temperature set at between 30 – 33°C with 4 blowers set to maximum.

We installed 3 Airius Model 25's. The temperature on the A/C units have now been reset at between 18–22°C with the 4 blowers on the low setting and 2 of these are turned off intermittently for approx. 2–4 hours per day.

Staff on both floors commented on the lovely comfortable temperature in comparison to before the system was fitted. These have been monitored during the cold spell of weather that we are experiencing at the moment."

Sean Browne - Dealer Principal

SCEGGS Sports - Basketball Courts



Leading private school, SCEGGS Darlington, had a significant over-heating problem in their multi-purpose Basketball hall. They had considered blade fans to increase air movement, but these were vulnerable to impact and they wanted a more aesthetic and cost effective solution. So they contacted Airius.

Not only was the Airius solution cheaper to install, but was more durable, covered a greater floor area and provided ample cooling, without the need for an expensive Air Conditioning system.



Key Points:

- **Basketball Court:**
 - 1,000m².
 - 10m high ceiling.
- **Airius solution = 8 x Model 60's.**
- **Comfort levels increased dramatically.**
- **Cooling effects felt immediately.**
- **Simple, quick & cheap installation.**
- **Durable & resilient to impact.**
- **Also reduces heating costs in winter.**

SCEGGS facility manager Keith Stevenson approached Airius to help address severe over-heating problems in their 1,000m² multi-purpose Basketball Court facility.

The basketball courts were in a room 10 metres high with a concrete ceiling. Tennis courts were located on the floor above, which contributed to the over-heating.

8 Standard Airius Model 60 units were supplied with two five Amp (SC-05) Speed Controllers, for an installed cost 20% cheaper than blade fans, whilst also providing greater floor coverage.

As a bonus the units were adjustable in any direction. This allowed SCEGGS to direct the air flow to where it was needed, but without causing interference to activities such as badminton, where normally the airflow from alternative fans would impact on the flight of the shuttlecock.

The improvement in comfort inside the space was instant and they indicated that even on the warmest summer days the air movement offered cooling and made the space much more comfortable and usable.



CASE STUDY - COOLING



“The Airius system has been in operation for six months now. We are more than happy with the results.

The space is a lot more usable in the summer months. We have received great feedback from both the school PE department and also external hirers.

We are extremely happy with the performance and comfort we receive since installing these Airius fans and would happily recommend them to other organisations needing to circulate air and increase thermal comfort.”

Keith Stevenson - Facilities Manager, SCEGGS Darlington.



CONTACT US

Get in touch!

Airius Europe, Africa, Middle-East & Asia

Holwell Farm
Cranborne, Dorset
BH21 5QP - UK

Tel: (00) 44 1202 554200
Fax: (00) 44 1202 554396
Email: airflow@airius.co.uk
Web: www.airius.co.uk

Airius Americas

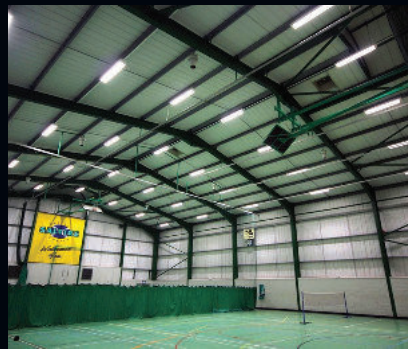
811 South Sherman Street
Longmont, Colorado
80501 - USA

Tel: (00) 1 888 247 7327
Fax: (00) 1 303 772 8276
Email: info@airiusfans.com
Web: www.airiusfans.com

Airius Oceania

2/14 Brandon St.
Suffolk Park
NSW 2481
Australia

Tel: (00) 61 0 401 848 888
Email: info@airius.com.au
Web: www.airius.com.au



For more case studies, demonstration videos, client lists,
testimonials and product information visit us at:

www.airius.co.uk