



Installation of the Unico Small Duct High Velocity (SDHV) System in the Reception Area at NSBRC

Introduction

The National Self Build and Renovation Centre (NSBRC) is the country's only permanent venue for independent homebuilding advice and showcases the best building technologies and construction methods. Since becoming an employee-owned business in 2014,

the facility has been continuously developed to ensure the optimum visitor experience for the 1000s of self-builders, home improvers and building professionals who attend annually. The most recent initiative has been the installation of a new Unico System Small Duct High Velocity (SDHV) system in the venue's reception area, which welcomes

visitors with a comfortable indoor environment whatever the time of year or the weather outside.

Strategy

In the Summer, the 100+ square metre reception area, with its full-width glazing, can be affected by elevated temperatures, especially when many visitors congregate there to register. Then, in colder months, the space needs heat, and Unico can deliver that too.

In addition to providing year-round comfort, the Unico System had to meet several key specifications: maintaining low operational noise to avoid disturbing the reception area, delivering consistent temperatures free from drafts, and offering a visually unobtrusive installation.



Unico's ability to provide cooling and heating from one compact Air Handling Unit (AHU) and to match it with the latest environmentally friendly Air Source Heat Pump (ASHP) energy source was a key reason for NSBRC selecting this product.

The suspended ceiling above the reception had plenty of space for installing a Green Series Unico MB4260H Air Handling Unit (AHU). It features the latest Variable Speed Control high-efficiency fan, which is up to 62% more energy-efficient than standard fixed-speed motors, and a Smart Control Board to ensure precise airflow control, easy commissioning, and diagnostics.

One of the major advantages of the Unico System is its ability to be adapted for operation with the latest heat pump technology or other energy sources. In this case, it uses a Heat Pump coil and a Daikin Heat Pump outdoor unit, using low environmental impact R32 refrigerant with significantly lower Global Warming Potential (GWP) compared with other refrigerants and A++ seasonal efficiency.

To ensure compatibility between the two technologies, Unico and Daikin cooperated to develop a customised control box interface.

The installer, Air Craft used their extensive experience to ensure the required loading and technical performance for the AHU and the ASHP were carefully matched.

Cooled or heated air is delivered into the reception area through flexible supply tubing, which culminates in thirty discreet small round outlets spaced equally across the reception ceiling.

Airflow through the supply tubing and into the reception area is exceptionally quiet, thanks to a sound-attenuating design featuring a nylon tube core wrapped in insulation that also reduces thermal losses. Using aspiration technology, the system introduces heated or cooled air at high velocity, creating a draft-free, evenly conditioned environment with minimal temperature fluctuations.

Results

The installation was completed by Air Craft, with minimal disruption in the day-to-day operation of the reception area. Following rigorous testing, it was fully operational in time for the NSBRC's series of open days in May 2022.



Installation Date
Spring 2022

Property Type
Large Commercial Event Space

System Specification
Green Series Unico MB4260H
Air Handling Unit
Heat Pump coil

Energy Source
Daikin Altherma 3 Monobloc
Air Source Heat Pump

Controls
Standard Daikin thermostatic
control

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