



DESIGNING INNOVATIVE SOLUTIONS

United Technologies

# BUILDING SOLUTIONS



Carrier's experts developed a high efficiency, low noise heating, ventilating and air-conditioning (HVAC) solution for the building development project at 1 & 2, New Ludgate, in London.

Customer

**SKANSKA  
RASHLEIGH  
WEATHERFOIL LTD**

Location

**LONDON,  
UNITED KINGDOM**

Equipment running since

**APR 15**



## High efficiency, low noise air conditioning solution for two prestigious London buildings.

Project

*With the building's intended "Excellent" BREEAM (Building Research Establishment Environmental Assessment Method) rating in mind, the project required a HVAC solution well-suited to the goals of reducing the building's energy consumption and environmental footprint, while promoting the well-being of its occupants and neighbours. The Carrier solution responded to the project's unique requirements, with the first European application of Carrier's new high efficiency air-cooled XAV AquaForce® chiller with Greenspeed® intelligence, in combination with updated versions of Carrier's AquaForce 30RBM 520 chillers. The system features a high efficiency design to limit energy use and operating costs, a compact footprint to enable a rooftop installation in restricted space, all within an acoustically-insulated package designed to reduce noise levels linked to the HVAC system operation.*

## KEY ADVANTAGES

Designed for high performance and full efficiency at partial load

Compact footprint, installation in restricted rooftop area

Low noise emission preserves high quality environment

Highly efficient maintenance with Carrier Service for operating costs savings

Low environmental impact brings reduced CO<sub>2</sub> emissions

Compliance with principles of green building design

## TECHNOLOGIES

6 x 30XAV 950 AquaForce® chiller units with Greenspeed intelligence (based on variable speed drive inverter-controlled screw compressors)

3 x 30 RBM 520  
3 x 30RBM 420 AquaSnap® units (based on scroll compressors)

Bespoke pump, control and chiller sequencing package, using Carrier's advanced web-based controller

### Contact

Carrier Air Conditioning division  
of Toshiba Carrier UK Ltd  
United Technologies House  
Guildford Road  
Leatherhead  
Surrey KT22 9UT

Tel: +44 (0)1372 220220  
www.carrieraircon.co.uk



Totally encapsulated in a noise reduction package, one of the Carrier AquaForce 30RBM 520 chillers, pictured at Carrier's factory in France before shipment to London for installation in a restricted space on the building's rooftop.

### Background

Carrier worked closely with the client, Land Securities, its consultant, and contractor SRW engineering services, to design and build a bespoke solution to meet the stringent efficiency and noise requirements for the air conditioning specifications for 1 & 2 New Ludgate. The chillers' compact footprint provided an ideal solution, enabling all equipment to be installed on the rooftop, freeing up the buildings' basements for alternative use.

Equipped with variable speed drive inverter-driven screw compressors, the AquaForce chillers with Greenspeed intelligence are designed to deliver excellent part-load efficiency, and high performance cooling. Their exceptional efficiency also delivers reduced operational costs for tenants and lowered carbon emissions for the building. Each chiller is encapsulated within a noise attenuation package, designed and built by Carrier, ensuring the system meets the project's stringent noise specifications. The quiet running of the system benefits building tenants and its neighbours alike.

## Challenges and solutions

The project presented a number of technical and site-specific challenges, and the solution delivers:

- **High energy efficiency design, to reduce operating costs and minimise the building's carbon emissions:** This was delivered by specifying Carrier's new inverter-controlled 30XAV AquaForce chillers, working alongside updated Carrier 30RBM AquaSnap chillers. With Greenspeed intelligence, the chillers deliver excellent part-load efficiency, and high performance cooling and are equipped with variable speed drive inverter-driven screw compressors. Their exceptional efficiency delivers reduced operating costs for tenants and lowered carbon emissions for the building.
- **Low noise emission:** The prestigious nature of the buildings, and close proximity to nearby residential apartments, resulted in a stringent noise requirement. The acoustic specification required the chillers not to exceed 65dB(A) at 1m during day-time operation, and 58dB(A) at 1m during night-time operation. Carrier designed and built a custom attenuation package which totally encloses the chillers. This was witness-tested at Carrier's R&D facility in France, to prove it met specifications
- **Compact footprint installation:** The original design proposed locating water-cooled chillers in the basement. However, as a result of the compact footprint of the 30XAV AquaForce chillers, Carrier was able to put forward an alternative design that accommodated the chillers on the roof, making available basement space for other uses.

### Perspectives

Carrier is continuing to work with Land Securities on a number of forthcoming major projects.

