

New building:  
Office complex in Paddington Central, England



## Outstanding BREEAM environmental rating thanks to innovative heating technology

Futuristic and ultra-modern. The office complex built according to plans drawn up by Sheppard Robson and Skanska, with around 24,154 m<sup>2</sup> floor space and with the address and name 'One Kingdom Street', is the most innovative project in Paddington Central. As one might expect, the building's planners were also innovative in terms of the heating technology - whose eco-friendliness has been awarded a top rating with the BREEAM classification 'Excellent', with the NO<sub>x</sub> emission values even undercutting the best BREEAM standard by a significant margin.

Five RENDAMAX 3600 boilers have been installed - with a connection to the high and low-temperature heating circuits. They satisfy all the requirements in terms of efficient heating output and energy management. Three boilers supply the air conditioning and ventilation systems and the under-floor heating for the entire floor space, whilst the two smaller boilers supply the hot water and radiator heating systems.

**Customer**  
One Kingdom Street  
Paddington  
City of Westminster  
London W2

**Builder**  
Skanska



## BENEFITS

### Efficiency

- Precise controllability with high efficiency
- High efficiency factor (109.8 %)
- Extremely low emission values (CO<sub>2</sub> < 15 mg/m<sup>3</sup>, NO<sub>x</sub> < 35 mg/m<sup>3</sup>)

### Convenience

- High degree of modulation 1:4, flexible output adjustment
- Compact system unit comprising boiler and burner

- Very low space requirement and low weight
- Water-cooled premix burner

### Reliability

- Optimum operating reliability in cascade connection
- Timer and weather controller for up to 15 mixer circuits

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# Maximum calculation and planning reliability – thanks to long-life service package for a fixed price

### The new system

The five state-of-the-art RENDAMAX 3600 condensing boilers with gas premix burners from stainless steel have a total output of 4.5 MW. They excel with their outstanding thermal output, low consumption, low sound level and low NOx and CO values – and what is more in highly compact form. This allows a great deal of floor space to be saved. The RENDAMAX 3400/ RENDAMAX 3600 burners offer a power range of 660 kW to 1.9 MW. The ability to connect up to 8 boilers in cascade makes these condensing boilers the perfect solution for large commercial buildings.

In Paddington Central, the three large RENDAMAX 3605 boilers supply the air conditioning and ventilation systems, the central convectors and the warm-air heating of the whole building. Two smaller boilers 'manage' the heating circuits with a flow temperature of 80 °C for the heating and hot-water generation. Modulating, water-cooled gas premix burners ensure maximum efficiency coupled with minimum NOx emission values.

With emission values of only 11.5 mg/kWh, the RENDAMAX 3600 undercuts the best BREEAM standard by a significant margin.

Martin McLaughlin, Specifying Consultant at Faber Maunsell explains: 'The low NOx emissions of the boilers were a major contributory factor to the excellent BREEAM classification of the building. The space saved in the machine room was also made possible by the compact design of these boilers.'



Equipment	New system
<b>Boilers</b>	5 gas condensing boiler R 3600
<b>Total output</b>	4.5 MW
<b>Standard efficiency factor</b>	106 %/109,8 %
<b>Storage tanks</b>	4 high-performance storage tanks each 1,000 l with external heat exchanger
<b>Total energy consumption</b>	3,200 MWh/year

### BREEAM - a standard for eco-friendliness

BREEAM (Building Research Establishment Environmental Assessment Method) is the leading and world's most widely used certification method for buildings according to which today over 110,000 buildings are already certified and over 500,000 are already registered for certification.

BREEAM comprises numerous, wide-ranging environmental and sustainability aspects and enables, for example, architects and project developers to provide proof of the environmental standards of their buildings to their planners and clients.

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