

## **Greening list – 275 Gray's Inn Road Eco-office**

We set out to make our new HQ a demonstrator of what an Eco-Office should look like, and plan to make it education piece on sustainability for our staff, volunteers and visitors. The things we have done are as follows:

Submitted for BREEAM Excellent standard

### **Renewables**

- 6kWe kWh Solar PV
- ~3kW.kWe solar hot water system

### **Biodiversity**

- 27.6 m2 green walls (one native, one biodiversity)
- 74.25 m2 ivy habitat wall, to help reduce air pollution
- Green roof on bike shed and on slab by light-well
- Kestrel box, swift double-box, house sparrow terrace, starling box, bat roost boxes, solitary insect nesting aid (clay and reed), wildlife butterfly and insect hibernation box, underground bumblebee box

### **Energy efficiency**

- All lights are LEDs, with combined daylight and motion sensors, and a central management system to change sensor and dimming settings
- Over the 700 m2 (7,600 square feet) only 7.7 kW of lighting is used (11W/m2)
- Heating and cooling is via an efficient VRF heat pump system with COP value of 4 (gives 4 units of energy for every 1 used), which is able to provide simultaneous heating and cooling. i.e. Excess heat from one area can be transferred to other areas requiring heat. Variable refrigerant flow and fan speed to adjust to demand. Thermal zones configured to allow for future flexibility of the office space
- Ventilation system has CO<sub>2</sub> detection that ensures ventilation levels staged to match occupancy provided with heat recovery
- Ventilation fans in toilets linked to occupancy (Kitchenettes / tea-point ventilation is indirectly controlled via office CO<sub>2</sub> levels)
- Copiers have been installed in lower heat gain areas
- Zero NOx levels as no gas consumption – is what a building of the future will look like on a decarbonised energy grid
- Enhanced remote-access BMS to monitor and manage central services
- Pod-type draught lobby in main entrance to stop heat loss through front door
- High-efficiency double glazing
- Extra-thick insulation – approximately 300mm reducing to 150mm at the lowest point
- All hot and cold water pipes lagged
- Server virtualisation – less server room equipment
- Print Manager Plus software to set staff printing targets and quotas
- Lighting and small power linked to alarm system so items get switched off overnight as a failsafe, except for key items such as fridges
- Instant water fitted on hard-wired timers, so no kettles
- Top energy efficient rated (AAA\*) fridges; no iceboxes / freezers
- Ambient air hand driers, rather than heating
- Modern high efficiency lift utilising variable speed drives and efficient controllers, and LED lights controlled by an occupancy sensor
- Voltage optimisation to 216.5v

### **Water efficiency**

- 3,000 L rainwater harvesting for flushing toilets
- Taps and shower from water efficiency technology list
- All sanitary ware has flow restrictors and thermostatic mixing
- Dual flush toilets
- Sub-metering for cold water to each floor linked to BMS to allow for monitoring
- Water leak detection via BMS monitoring the out-of-hours and during hours consumption and comparing with historic data
- Water shut-off valves to each floor linked to BMS

### **Travel**

- 20 bike spaces
- Shower, lockers and drying lines

### **Staff engagement**

- Carbon Culture engagement screens, capturing and presenting lie meter data, allowing internal energy competitions by floor
- Generation display for solar PV, solar hot water and rainwater
- Working with students from Westminster Kingsway College to engage staff and visitors in the sustainability attributes of the building
- Fruit and vegetable growing spaces internally

### **Procurement**

- Innovative cradle to cradle lighting pilot through Phillips, where we rent the lights and they pay for the energy the lights use, giving them an incentive to help us save energy
- EcoBase cradle to cradle carpets through Desso
- Mains-fed water cooler points, so no bottled water
- Timber from certified sustainable source timber products
- Formaldehyde-free particle boards
- No or low VOC paints
- 1,250m<sup>2</sup> of Fermacell boards used instead of virgin plasterboard

### **Recycling**

- 90% of construction waste recycled (via the London Construction Consolidation Centre)
- Only one waste bin per floor, with more frequent recycling bins
- Recycling provided by Paper Round – which was set up by Friends of the Earth. Includes food waste collection

### **Other**

- Heating and cooling VRF system uses zero ozone depletion refrigerant
- Refrigerant leak detection and pump down
- Power factor correction

### **Things we wanted to do but didn't**

- Cradle to cradle heating and cooling equipment, to include the electricity they use, as we did with the lighting through Phillips. We approached the various manufacturers who declined the opportunity to explore with us rental models.
- Regenerating lift, which creates energy as it brakes – the building is not tall enough to give us a good payback, with the payback being over 40 years.
- Light switches in meeting rooms operated by security cards – we suggested this too late to implement.