

## Chiller/Heat Pump Refrigerant

All of the new refrigeration plant being utilised on the site will be selected to operate using zero-depletion, "ozone-friendly" refrigerant gases.

## Motor Power Conservation

Many of the pump and fan motors have been supplied with the new inverter speed controllers.

These inverters regulate the energy drawn by the motor to suit the energy required by the operation of the system.

This is particularly beneficial on the office ventilation and cooling systems where the load requirements are continually varying.

## Lighting Control System

To comply with the current Building Regulations and energy conservation requirements, the new lighting control system will incorporate a number of energy efficient devices.

- **Remote monitoring and switching control**  
The new systems will have the facility for remote monitoring and operational switching. This has the benefit of the system control being possible from remote locations.
- **Daylight monitoring and dimming control**  
Sensors built into the system will monitor the level of ambient lighting levels within the space and automatically vary the output of the luminaries maintaining a constant light level within the space thus saving energy.
- **Presence detection**  
Presence detectors included within the installation will monitor the movement of occupants within defined areas of the building. The lights within this area will be set on a timer and will automatically turn off if no further movement is detected. This is particularly useful in areas of intermittent use, like toilets, meeting rooms, cleaner's cupboards and some corridors.

## Low-Energy Lamps

Where possible, low-energy lamps have been selected for luminaries within the lighting installation. These have the benefit of using less energy than standard filament type lamps and have a longer operating life.

## Air Handling Unit Thermal Wheels

Thermal wheels are used within the air handling units to reclaim heat from extracted air from the office space and use it to assist in either the pre-heating or pre-cooling of the supply air to the office space cooling system.

## BMS Control

The inclusion of the BMS system allows constant monitoring and control adjustment of the plant operation during its ever changing condition. This optimises the use of energy to suit those varying load conditions.

There are a number of functions of the BMS which are of benefit to the use and conservation of energy. The primary source of this is Plant Optimisation Control.

- **Plant Optimisation Control**  
The purpose of the plant optimiser is, over a period of time, to gather data of the operation of the building plant and compare this with the internal and external conditions.

This will determine the optimum time to initiate plant start-up and ensure comfortable internal conditions at the desired occupancy periods.

It continuously monitors internal and external conditions even when plant is not operating and will decide when plant needs to come on to maintain conditions within the building.

## Water Flow Regulators

Each of the taps and basin outlets will be fitted with flow limiting valves. These devices control and regulate the quantity of water that a tap discharges thus saving water usage.

## Toilet Core Solenoid Valves

A motorised shut-off valve has been installed to each of the public health services supply pipes feeding each toilet core.

This valve works in unison with a presence detector located within the toilet area. If no movement is sensed within the toilet for a pre-set time period the valve will shut and isolate the water services. Upon sensing movement the valve re-opens and services supply is reinstated.

This is of particular benefit if taps are left on or leaks develop in non-visible areas.

## Urinal Flush PIR

A PIR has been installed to regulate the flow of water to the urinal flush cisterns. Again on sensing movement within the toilet area the flush cistern will fill and flush.

This is of benefit in periods when toilets are not in use, ie. weekends, bank holidays and evenings.

These are the main “green” energy/resources-saving processes being implemented on the Thomas More Square service designs.

Furthermore the building has achieved a “VERY GOOD” BREEAM (Building Research Establishment Environmental Assessment Method) rating.