

PUBLIC HEALTH ENGLAND COLINDALE



Public Health England Colindale is housed in a range of buildings on hospital grounds in a London residential suburb. It was built to provide micro-biological services for control and spread of infectious diseases in line with the 'Public Health Laboratory Service Act of 1960'. The site comprises a mix of laboratories and offices. The building is dynamic and is often modified to accommodate new technologies in high containment, legislation and emerging diseases.

SUSTAINABLE DEVELOPMENT AT PHE COLINDALE:

Sustainability on site began a few years ago as utility costs began to soar. With responsibility for utility budgets, site services began to substitute equipment with energy-efficient technologies.

An ISO14001 'Environmental Management System' (EMS) framework was produced centrally to start identifying and recording applicable legislation; 'aspects with their significant impacts' and regular recording of utility-use. At Colindale, the EMS is currently being integrated into the quality management system to incorporate sustainability into all site activities. It is now embedded into business cases and projects to determine 'Whole life cost' and 'Life Cycle Analysis'.

ENERGY TECHNOLOGIES:

In order to identify high use-areas and anomalous energy use, electric sub-meters and water flow-meters have been installed. The main site meters are monitored by an external electronic 'energy management system' and read monthly, manually.

In March, we replaced two adiabatic chillers and two screw chillers with two energy-efficient chillers. As 'cooling degree days' numbers increase, it is clear that the chillers are functioning well to maintain a

comfortable working temperature of 22-24C whilst the outside air temperature soars. Although passive cooling is preferable, it is not an option in high containment laboratories when preventing pathogen-circulation and a constant number of air changes is required with a corresponding negative pressure.

3 Robey Lincoln Boilers generate steam for autoclave sterilization and heating, each with additional Sabien M2G boiler optimization units using intelligent software and hardware to improve boilers' efficiency. In 2010, this equated to a CO2 reduction of 110 tonnes annually and a 10% reduction in costs. In addition, each of the 15KW gas booster pumps on the boilers has been replaced with a 3KW pump saving of > 47 tonnes of CO2.

Further boiler improvements have included installation of a reverse osmosis plant with water softener to enable filtration of impurities before process water is heated. This reduces the number of blow-downs required; reduces steam circuit corrosion; a chemical reduction in acids required for de-alkalization and a commensurate reduction in gas used by the boilers.

Major projects have included installing photovoltaic cells for renewable energy production, double glazing and waterproofing the roof with both thermal retention and solar reflectance properties to retain heat during winter and reflect it during summer.

Lighting projects include converting existing 37 x twin 20W T12 external bulkhead light fittings to T5 with 'Save It Easy' HF converters leading to an energy saving of 65%. Existing office lighting is being replaced with new LED Flat Panels providing lighting for an extended 45,000 hours and existing plant room lighting is being replaced with new T5 energy-saving lamps coupled with microwave movement

sensors. This project uses 60% less energy, emits less heat to the environment and due to the fitting's longevity, less waste is produced over the lifetime of the building.

WATER TECHNOLOGIES:

Water flow meters are read monthly and water-usage, calculated per FTE and per metre, is analysed to determine fluctuations. Water-less urinals have been installed on site in high-usage areas where conventional urinals use 100,000litres of water per year. Water-less urinals use carbon filters requiring less daily maintenance enabling cleaning staff more time for other duties. Signage is written above the urinals to instruct staff on the new technologies and savings made.

Currently, a survey is being completed on two main toilets to investigate air-assisted toilets which will reduce water used per flush from between 11-8litres to 1.5litres.

The site also has three large water butts connected to the rain downpipes and this water is used by the site horticulturalist for the grounds.

TRANSPORT:

The site accommodates > 1300 staff however 360 car parking spaces are available. PHE Colindale has its own liftshare scheme: - www.phecolindale.liftshare.com and public transport is available with buses and the Northern tube-line station in walking distance. A loan scheme is available for staff to purchase annual tickets.

A draft transport plan has been developed using annual staff travel surveys and a 'Sustainable Transport day' was held in March to highlight 'Climate Change' and transport impacts. Local electric and mechanical bicycles suppliers and 'Cycle scheme' (www.cyclescheme.co.uk/b1255) members, were invited to take part in promoting sustainable transport. Facts and figures were highlighted at the event





including impacts on health. Competitions were held on static bicycles and 'URGE', a bicycle maintenance company was invited to help staff maintain their equipment. PHE's 'liftshare' scheme was promoted by highlighting financial savings to endorse the benefits. A walking competition was also held throughout the week to measure distances walked by staff.

A straw poll was held to ask staff for their opinion on site parking and commuter transport decisions. It was also helpful in initiating conversations on climate change!

WASTE:

The site produces many types of laboratory waste: clinical; refurbishment; office; food; chemical; pharmaceutical; effluent; anatomical and green. This area has the most impact directly and indirectly through steam used for sterilization; cooling water; transport for collection; incineration pollutants; water & chemical use in effluent treatment and material resource-use.

In order to reduce waste, all waste is monitored and recorded with copies of waste transfer/consignment notes and disposal type. Government preferred consumable-suppliers have been contacted and a products' life cycle must be identified. Most plastics melt when autoclaved and transform into fibrous mush which cannot be recycled. If PHE purchase plastic



consumables that can be recycled, waste to incineration can be reduced considerably and PHE can move further up the waste hierarchy. Green waste is recycled onsite in six wooden compost bins constructed out of used wooden pallets and three in vessel composters process green waste from the kitchens.

ECOLOGY:

As part of the drive to improve biodiversity and maintain wildlife on site, PHE have planted bee-friendly plants donated by interested staff members; installed bird boxes around the site to encourage bird species and allowed green banks to become over-grown with wild flowers and flowering weeds. Colindale had three beehives a few years ago however with the prevailing wet and cold weather in early spring last year, residents of two hives were decimated however the good news is that the surviving hive has exponentially increased in numbers, helped by bee food early in the season and an increase in bee-friendly plants.

Allotments for staff members have been constructed in green areas of the site. With money raised through sustainability days, greenhouses are now in place with tools. The allotments serve to help cross the link between good physical & mental human health, permaculture and ecological systems.

ENVIRONMENTAL COMMUNICATIONS:

During the past year, we have had sustainability days to raise environmental issues. In September, all aspects with high impacts were covered with our suppliers showing methods and technologies to become more energy-efficient; use less water and generate less waste. Statistics on site resource-use, transport & climate change were produced on a recurrent presentation within the restaurant area and reception televisions. 'Friends of the Earth', RSPB, and local beekeepers were invited to educate staff with bee-friendly plant lists and honey produced locally to aid people suffering with pollen allergies. Bee-hive tours were organized with the onsite beekeeper and bird boxes were constructed from used pallets.

In addition, we held an allotment opening ceremony and presentation by Dr David Pencheon (Director NHS and PHE Sustainable Development Unit) in the lecture Theatre on the connection of health and the environment. Fruit trees were planted on site to record this event and 'PHE Colindale' became a member of 'NHS Forests'.



In December, we held a charity fund-raising event to collect decorated shoe boxes with non-perishable food & gifts for 'AGE UK'. Altogether, PHE donated 90 shoe boxes to three 'AGE UK' facilities with £210.00 collected through a Charity event held in December to raise awareness on having a 'Sustainable Christmas'. The event included making Christmas decorations with recycled materials; using leftover food for producing tasty meals and desserts; selling charity Christmas cards and competitions involving winning prizes donated by contractors.

As mentioned above, to promote 'Climate Change Week' in March, we held competitions in cycling, walking & cake-making using locally-sourced vegetables. 'Cycle to work' breakfasts were sponsored with the help of EMCOR and purchasing a bike through the 'PHE Cycle to Work' salary sacrifice scheme was promoted.

To show our support for 'NHS Sustainability Day' we planted two more indigenous trees on site with the help of Matthew Offord, local MP for Hendon and Richard Gleave, Chief Operating Officer for Public Health England. As Colindale is a member of NHS Forests, we were able to obtain two willow trees which were donated by 'The Great Outdoors Gym Company Ltd.

Many cost-saving, carbon-reduction initiatives are continuing to be implemented and PHE Colindale is proud to illustrate its 'Corporate Social Responsibility' in the focus for 'Sustainable Development'.