

PROJECTS COMPLETED

- **Motion & Lux sensors on light fittings in corridors.**

In areas of the facility with medium to low volumes of personnel movements in hours of darkness, we have installed combined motion and light (lux) sensors. These sensors activate the lights only when there is motion detected and when the light levels in the area are below an acceptable level. Given that we now run 24 hours a day in some area, these combined sensors have significantly reduced the energy required for lighting at a very low capital cost.

- **Extra insulation on boiler room valves.**

It is common practice to install many of the pumps and valves surrounding a boiler plant without the insulation that you would expect on other parts of the boiler system. This is done to make the maintenance of these pumps and valves easier. Unfortunately, these relatively small areas of un-insulated fittings result in a considerable amount of heat loss over the course of a year. To eliminate this heat loss we have fitted insulation jackets to all the boiler pumps and valves. These jackets dramatically reduce the heat loss, but also are flexible enough so that they can be easily removed to allow for maintenance of the valves or pumps.

- **Localised Dehumidification system for capsule fillers.**

Previously, we dehumidified all the air in the rooms where capsules are filled in order to ensure that the powder filled into the capsules is not exposed to conditions of high humidity. The volume of these rooms is approximately 400m³ and all of this air was dehumidified several times an hour and required a substantial amount of energy. However it was noticed the powder that is filled into the capsules is actually only exposed to the atmosphere in a relatively small area inside the machine hood. We then carried out a number of trials to see if it was possible to protect the powder by only supplying dehumidified air to the machine hood. These trials proved successful and now we only supply dehumidified air to the machine hoods which have a volume of approximately only 2.2m³. This has led to a substantial reduction in the amount of energy required to dehumidify air for the capsule filling process.

- **Number of air changes in the packaging areas reduced**

When our factory was built the HVAC system was designed so that there would be 10 air changes per hour in packaging areas. A lot of energy is required to transport all this air, but also to heat or cool it to the required temperature. After consulting with other pharmaceutical sites and the regulatory bodies, it was determined that we could reduce the number of air changes in packaging to 7. This was done by adjusting the valves on the HVAC ducting and adjusting the fan motor setting. The result was a substantial reduction in the energy required to run the HVAC system in our factory.

- **Building extension made with thicker cladding**

In areas of the building where we have carried out extension work, we have used much thicker cladding on the building than was previously used. The thicker cladding has a much lower U value, which means that in the winter much less heat is lost to the outside and in summer much less heat is let in from the outside. This means that newer parts of the building require much less energy to maintain the required temperature.

- **Packaging area fitted with more efficient temperature controlled radiators than HVAC**

In the area of the factory where materials are stored temporarily while on transit between the warehouse and the packaging lines, we decided to remove the HVAC system and instead use natural ventilation and automatic radiators to control the environmental condition in the area. These areas are not normally occupied by people and the material being stored there is in protective packaging, therefore it is less important to have high levels of control in these areas than in other areas of the factory. By removing the HVAC from this area and replacing it with the lower level of control we have significantly reduced the amount of energy used in these areas.