Working together for a healthier world™

Freiburg, Germany: Green Challenge Revival of a 1950's Building

Project SPRING (Strategic Plant RestructurING), PGM Freiburg challenged a team of of engineers and architects to not only improve the 50+-year-old building's sustainability, but also improve its operating cost and performance. A project team at the Freiburg site transformed the 1950s-era facility into a modern, eco-friendly building using innovative and cost-effective "green" building technologies and techniques, such as a ventilation process that reduces air flow rates and a geothermal system that uses the natural heat storage capacity of the earth's thermal mass to provide energy-efficient heating and cooling.

Some of the green innovations in SPRING included:

- **Geothermal Energy for Cooling and Heating** — a first for Pfizer Europe. The temperature of the soil 130m below the surface is 12°C year round. This geothermic reservoir is used to store heat in summer and to supply heat in winter. Pipes with brine solution bring the energy into the building. Using low temperature ceiling panels (i.e., provides an extensive energy exchange surface), offices are heated in winter and cooled in summer.

- **Adiabatic Cooling** — the incoming air is sprayed with water vapor where evaporation of the droplets cool the air, allowing lower temperatures even without air conditioning.

- **New Windows and Innovative Open Office Space** — Natural illumination is supplied by a two-zone-window-shade-system, optimizing daylight to supply lights in all areas of the building. Additionally, energy from the sun is minimized by outside sun protection of the windows.

- **Heating Energy Minimized** — Heating produced from the business equipment was significantly reduced by combining printers, copiers, and scanners, using only one refrigerator per floor, and minimizing use of individual printers.

- **Green Technologies in Labs:**
  - Reduced air flow rate in fume hoods by installing sensors that automate window shield closure.
  - Closed systems for solvent refilling and waste handling operations, minimizing solvent emissions.
  - Ventilation of laboratories is reduced overnight so that the air exchanged decreases by half.

The project was a success, saving US$440,000 in annual energy costs, reducing gas and fuel by 3325 megawatt hours (MWh) and reducing CO_2 emissions by 1,200 metric tons.