



Environment Monitoring of Collections at St Pancras

By Tony Parker, responsible for environmental monitoring at the British Library

One of the most efficient ways of protecting the collections at St Pancras is to keep them in a suitable stable environment adhering to British Standard 5454 *“recommendations for the storage & exhibition of archival documents”*.

Historically we have done this by controlling the temperature and relative humidity (RH) of the environment around the collections, either passively i.e. storing items in boxes and closed cabinets, or actively i.e. by heating (radiators), cooling (chiller units) and controlling the moisture in the air (humidifiers / de- humidifiers)



Above: A BEMS Monitor

Currently in St Pancras we use an active system of air conditioning (HVAC) to achieve stable environmental conditions. Operationally our estates and engineering staff monitor and control the air-conditioning (HVAC) system, via the Building Energy Management System (BEMS) sensors, which measure the temperature and relative humidity. This system is supported by both stand alone and radio data logging sensors. Presently a system of approximately 180 sensors (both Temperature and RH) are managed by the Collection Storage Environmental Monitoring Office.

The BEMS system is hard wired into the fabric of the building it is therefore hard to change sensor locations. However, the stand alone loggers are battery powered and the radio loggers do not require any wires. So these are easy to install in locations where we wish to improve or increase the amount of monitoring, such as exhibition cases.

Both systems are electronic and link to computers allowing alarm levels to be set, indicating when conditions exceed specified tolerance thresholds. Data can be viewed in either graph or number layout, and it can be exported to enable further analysis using specialised software. This software can convert the data into useful reports: showing maximum and minimum figures, averages, percentage of time that conditions were within, or below and above the requested boundaries, etc.

We also use a set of metrics developed by The Image Permanence Institute, Rochester Institute of Technology, which includes dimensional change, equilibrium moisture content and preservation index numbers.



Above: A Radio Sensor

All of the gathered information on environmental conditions is vital for informing the planning of improvements to both our existing buildings and to inform the design of future British Library storage buildings.