

SOLVING OVERHEATING PROBLEMS IN BROMLEY HOSPITAL

CLIENT

NHS ESTATES



PROJECT

In early 2004 BRE were contacted by NHS Estates for Bromley Hospital regarding serious overheating issues in widespread areas of the new PFI building. The hospital had been designed with low energy in mind. As part of the low energy approach it had been decided that all ward areas would be naturally ventilated to reduce the energy consumption associated with mechanical ventilation.

BRE were asked to examine the building in order to:

- Determine the extent of the overheating problem through measurements.
- Confirm the effectiveness of the solar shading approach.
- Assess the performance of the mechanical ventilation systems that had been installed in non-ward areas.

Following a survey of the building BRE presented its findings and provided suggestions for corrective measures.

CONTRIBUTION

The BRE team went into Bromley Hospital during May and June of 2004. During a number of visits over the period temperature sensors were placed in naturally ventilated ward areas to establish the summertime temperature levels. A full visual survey was undertaken to ascertain the general approach to ventilation in these areas. It was also necessary to measure the performance of the mechanical ventilation systems in other areas to determine how well or otherwise these systems were performing in relation to their design specifications.

Finally the survey examined how the windows might be contributing to the overheating within the hospital. The type glazing was examined as well as the ratio of glazed area in comparison to that of the internal zones served. Shading devices designed to minimise solar gains were studied to see whether they were effective. Having completed the site surveys and measurements the BRE team presented their findings to the NHS Estates and the PFI contractors responsible for the design and build. All problems identified through the study were explained and solutions provided. Open discussion was encouraged between NHS Estates and the PFI contractors and independent guidance was provided by BRE whenever clarification and cost effectiveness issues were raised.

BENEFITS

The project was successfully completed in that all factors that were contributing to the overheating problems in the hospital were identified. This has provided an independent service to the client that has ensured future remedial actions will lead to better conditions for patients.

The approach to this service was particularly useful to NHS Estates as they were empowered to go back to their contractors with an evidenced based confirmation of the problems being experienced. In addition, the cost of remedial actions could be justified by the extent of the problems encountered and the specific effectiveness of actions available.