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Bradford Royal Infirmary cuts energy bills with Spirax Sarco

Bradford Royal Infirmary has sliced an estimated 15% off its energy bill by opting for plate heat exchangers (PHEs) from Spirax Sarco. The compact PHEs replace calorifiers that previously supplied heating and domestic hot water to areas of the hospital.

The replacements began with the supply of two PHEs to replace three domestic hot water calorifiers that were designed to run on waste heat from the hospital's combined heat and power (CHP) plant.

The gas-powered CHP plant generates electricity for the hospital. The plant is cooled by water, which then acts as a heating medium in the domestic hot water heat exchangers. "The calorifiers weren't particularly old, but we wanted to be more efficient," says Mr. Paul King, Project Technician at Bradford Royal Infirmary. "They were also starting to cause a few maintenance issues, and the need to strip them down for insurance inspections was a bit of a nightmare. PHEs avoid that completely."

The Spirax Sarco units predominantly run on waste heat from the CHP cooling water, which is topped up with steam from the hospital's boiler when necessary. "The system takes as much heat from the CHP plant as possible, and is only topped up by 8% live steam on average three times a day, when the running load is at its highest," says Mr. King.

Mr. King says the domestic hot water units proved such a success that the hospital then installed a further two Spirax Sarco PHEs to provide hot water for heating. These units run primarily on plant steam but the system is piped to accept heat from the CHP plant when available. This has enabled the hospital to simplify the heating system and remove a further six calorifiers in all.

In both the domestic hot water and heating systems, the PHEs operate in pairs with one unit on duty and one on standby. "We've now got four compact units instead of nine calorifiers and only two work at one time. It's phenomenal really," says Mr. King. "The difference in the plantroom is enormous. We've gained all this extra space." "In fact, we were very much undersized before. In the middle of winter we had no standby capacity at all, but now we've got plenty," he adds.

Before the new system was installed at Bradford, Spirax Sarco estimated that there would be about 12% energy saving. Although it's too early to confirm definite figures, the hospital is confident that the actual savings will be closer to 15%, which is equivalent to over £5,000 a month.

PHEs are generally more efficient than calorifiers, and being typically a quarter of the size have lower heat losses. They are also easier to control and maintain and provide more efficient heat transfer.

Bradford Royal Infirmary is so delighted with the recent installations that it has since ordered more Spirax Sarco PHEs to meet a mixture of heating and hot water duties in four other areas of the hospital.