

# Honeywell controlled heating ensures luxurious comfort

*At first glance, picturesque West Mill Cottage is a nostalgic vision of a bygone age before pumped central heating, thermostats and motorised valves. But a peep inside Fred and Wendy Sutton's extensively refurbished and extended home reveals a complex, specially designed heating system that uses a 90,000 Btu Worcester boiler to provide underfloor and radiator space heating in four separately controlled zones, as well as domestic hot water.*

The entire installation and its controls were meticulously designed and installed for superior comfort and reliability by The Stove Shop. "All system components including the boiler are carefully hidden from view, using roof space and a boiler room constructed under extended eaves at the side of the cottage," revealed Neil Austen of The Stove Shop.

Devotion to quality has been followed through in the

normally heated by the home's AGA cooker and 'topped up' by the boiler when necessary. An immersion heater is provided in reserve. "We installed a high efficiency unvented hot water storage cylinder, specially-built with two heating coils," explained Neil Austen.

The lower coil is fed from the AGA via a gravity circuit, which provides enough hot water for most circumstances, while the



West Mill Cottage.

The electrical controls required special expertise and attention to detail so, for their design and installation,



Referred to in the article as Fig. B): The wiring centre, located in the external boiler room. At top left are the RF receivers for the two wireless CM67 thermostats and the frost thermostat is on the right. The first channel of the Honeywell ST699 timer, bottom left, allows the boiler to boost the domestic hot water during two periods each day by opening a motorised valve via the cylinder thermostat. Its second channel provides a single daily 'on' period for both the domestic hot water recirculation pump and the towel rail circuit.

domestic hot water recirculation return is set to switch the pump off at 55°C, so reducing heat wastage by preventing hot water being pumped round unnecessarily," said Alan Gregory.

The Stove Shop installed the towel rail circuit as a separate zone at the householders' request, revealed Neil Austen. "Special attention was necessary to prevent bathroom users being harmed by hot towel rails, which would have happened if they had been heated to the temperature of the boiler, 75°C," he said. "It was also necessary to prevent the boiler cycling frequently due to the small demand from this circuit.

"Our solution was to provide a small indirect cylinder in effect, a thermal reservoir - with pumped circulation to the towel rails via its high recovery coil." As shown in Schematic B, a cylinder thermostat calls for heat when required by switching on the motorised valve and oil-fired boiler. At 60°C, the cylinder thermostat switches off the motorised valve and boiler, whilst switching on a re-circulation pump to the towel rails. "In this way the cylinder thermostat controls the towel rail temperatures indirectly. There is sufficient demand for the

boiler to run efficiently during the short periods required to keep the towel rails satisfied."

There was an initial problem with the towel rail cylinder. "We discovered that the towel rail circuit wasn't being heated enough. It was because the pumped hot water, which entered the cylinder at the bottom, was hitting the opposite side and creating a vortex up through the tank and bypassing the coil. We were getting vertical stratification problem - a very unusual situation. I solved the problem by switching the connections, so the hot water enters at the top and exits at the bottom. It now works perfectly."

Wendy Sutton is delighted with the comfort, control and efficiency provided by her heating system. "It's excellent," she said. "The best thing about it is its controllability. It means our entire house is always comfortable - and the underfloor heating in the living area is wonderful."



General view of boiler room at West Mill Cottage.

choice of controls: "Honeywell programmers and valves were used throughout and, to avoid drilling the walls and decorations, two of the home's three Honeywell CM67 programmable thermostats have the wireless RF option," he stated.

The four central heating zones are: The main house, heated by radiators; A 45 square metres lounge with underfloor heating;



The kitchen and (beyond) conservatory.

Domestic hot water is

higher coil is fed by the boiler. A Honeywell cylinder thermostat senses the temperature of the cylinder and initiates a short burst of boiler heat, ensuring the boiler runs efficiently. A pumped re-circulation loop reduces wastage and ensures prompt delivery at the taps."

The domestic hot water and four heating zones are each regulated by a motorised valve, housed in the boiler room with the main controls.

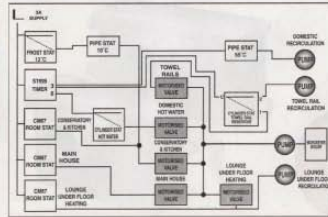


Fig A

the Stove Shop called in Alan Gregory, a Liskeard-based independent electrical specialist. As the schematic in Fig A shows, each of the three main heating zones (the lounge, the main house and the kitchen/conservatory underfloor) are controlled by a Honeywell CM67 programmable thermostat and motorised valve.

"The wiring centre is located on a board in the external boiler room along with the motorised valves,"

freezing. A pipe thermostat on the kitchen/conservatory zone return operates at 10°C to shut down the heating (see Fig A)."

A Honeywell ST699 timer, visible on the board below the two RF receivers, provides two timing functions. Its first channel allows the boiler to boost the domestic hot water during two periods each day by opening a motorised valve via the cylinder thermostat. The second channel of the



Honeywell CM67 programmable thermostat, mounted in the main hall/stairway.

explained Alan Gregory. "At top left are the RF receivers for the two wireless CM67 thermostats. A frost thermostat, mounted to their right, opens the motorised valve in the

ST699 provides a single daily 'on' period for both the domestic hot water re-circulation pump and the towel rail circuit (see schematic in Fig. A). "A pipe thermostat fitted to the

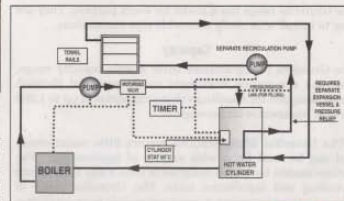


Fig B