

## Case Study: University of Leicester



**Chalmor**

Experts in Energy Saving Lighting and Heating

### eTRV helps to achieve a 33% gas saving for the University of Leicester

The Fraser Noble building at the University of Leicester, named after a former Vice Chancellor, provides lecture halls as well as smaller rooms for teaching and administration.

The University completed the installation of eTRVs and at the same time replaced a Hot Water cylinder. During the first heating season the monitored gas savings were 20%. The actual savings were even more impressive given that this year was 19% colder, measured by local degree days, than the corresponding September – March heating period in the previous year. The weather corrected gas savings from both measures therefore reached 33% overall.

eTRV is a smart replacement for a traditional TRV to provide time control and more accurate temperature control. Further savings in intermittently occupied areas are achieved with PAIR occupancy sensors that enable heating to automatically reduce when the area has been vacated for 60 minutes.

eTRV enables each radiator to be its own zone providing local control and supplements the building management system (BMS) which controls the boilers and provides optimum start and weather compensation. Further with PAIR occupancy control eTRV can automatically switch to a lower set back temperature when areas are not in use and then will provide a rapid recovery when the space becomes in use again.



Professional design puts the University of Leicester in full control of their energy





## The Solution

- ✓ In the Fraser Noble building eTRVs were installed in the teaching and administration rooms together with PAIR occupancy sensors. The object of the occupancy sensors was to automatically reduce heating to the "ECO" setting (19°C) whenever the area became vacated. During occupancy heating would automatically switch to "COMFORT" setting (21°C) and should the area remain un-occupied for more than 2 hours then heating would reduce to a set back setting (17°C).
- ✓ During the morning preheat period eTRVs are programmed to ensure areas are fully preheated for the start of the day with the optimum start period calculated by the building management system.
- ✓ The flexibility of the eTRV with PAIR occupancy control means that temperature and time settings are programmable to suit the individual application. Elsewhere, in the toilets and corridor areas eTRVs were fitted without occupancy control and set to provide 19°C at all times.
- ✓ As a further bonus in carbon reduction, during the 7 month monitored period 20% (7,500 kWh) of electricity savings were also achieved probably as a result of reduced pump demand, an extra saving often reported where eTRV's have been fitted. A further benefit of eTRV is that it helps to improve comfort by reducing cold spots by effectively balancing the heating system which has been shown to reduce the use of supplementary heating which may also contribute to the electricity savings.



"Based on the savings made, smooth installation and commissioning and positive feedback we would look to use the eTRV for other areas around the University of Leicester".

The Division of Estates and Campus Services | University of Leicester

Degree Days show the corresponding period this year was 19% colder than last year.



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
20yr Avg	337	296	259	208	129	53	33	31	69	157	252	340	2,195
2005	300.8	317.1	265.1	194.9	129.6	57.3	29.6	34.9	54.2	86.7	289.3	348.4	2,118
2006	352.5	329.1	327.8	199.8	110.8	43.6	17.3	28.6	36.3	92.2	225.8	282.3	2,033
2007	263.8	273.2	261.2	146.4	127	46.3	41.4	43.4	75.3	146.3	252.5	396.6	2,005
2008	277.7	303.7	289.5	225.5	101.1	68.3	34.8	26.7	76.7	182.9	257.4	366.4	2,212
2009	391.3	316.7	256.7	179.1	120.3	68.9	35.2	30.4	95.6	126.9	209	393	2,186
2010	445.3	352	290.6	200.4	161.1	59.9	22.3	45	77.7	166.8	315.8	506.9	2,644
2011	368.8	247.2	306.8	129	118.9	74.5	47.8	41.5	45.9	111.3	194.3	194.3	2,037
2012	319.8	348.2	237.6	255.5	144.8	79.7	47	33.2	107.4	202.1	285	347	2,400
2013	364	269.2	411.8	244.2	170.6	75.5	24.9	29.1	71.9	103.5	279.8	287.1	2,441
2014	300.4	291.7	242.1	167.5	112.5	49.5	28.4	50.1	52.1	107.1	218.8	320.4	1,910
2015	344.6	321.6	280.2	190	145.9	76.1	40.6	38.8	97.1	147.1	183.7	176.6	2,044
2016	309.7	302.6	303.3	234.4	117.5	43.2	30.7	25	36.5	147	289	279	2,119
2017	335	258	225	178.9	76.3	33.3	20.8	53	88	126	269	349	2,012
2018	333	350	341										1,832

