

# Gaz de France recommends the Thermozyklus solution for more energy savings in a nursing home

The “Jeanne Delanoue” congregation, a nursing home located in Saint-Hilaire-Saint-Florent, near Saumur in the centre of France, welcomes about sixty occupants with an average age of 75-80.

The heating had always been a real problem for this institution, not only in terms of costs but also in terms of users’ discomfort management, as the buildings were often overheated. Advised by their gas provider, the nuns decided in the beginning of 2009 to implement the self adaptive ThermoZYKLUS heating regulation system.

**Statement a year after:  
30% energy savings, confirmed by the natural energy provider GDF Suez\***



## Heating? Yes, but...

Heating expenses are a permanent issue for nursing homes. Indeed, the comfort of the residents needs to be excellent while the costs must be kept low. But how can comfort and savings be combined?

This is exactly the objective set by the nuns of the “Jeanne Delanoue” nursing home, as they come to discuss with a sales representative from GDF Suez.

The given characteristics are complex. The Jeanne Delanoue religious congregation is composed of 2 buildings, both powered by the same gas boiler, which is regulated by 2 three ways valves and an external sensor. The layout is as following:

- A modern part: the nursing home,
- An older part (a historical ashlar building): the cloister, randomly occupied by the walking around residents. This part forms a square, with large windows all around, long corridors – some over 300 feet long – and 10 feet high ceilings. A difficult space to heat for the 21 existing radiators, even more because of other factors such as the alternate sunshine, the specific needs of every occupant (leading to window opening), the heritage preservation, etc.

Finding out the right solution for the wallet that takes into account the unique environment without compromising on user comfort: a big challenge for GDF SUEZ!

That’s the context in which GDF SUEZ, a real energy architect, advises the nuns from the Delanoue congregation to install the THZ system from ThermoZYKLUS, as a perfect answer to their need of lower energy consumption.



## A highly technical product which adapts to any kind of heating system...

ThermoZYKLUS takes natural energy gains and losses into account (such as door or window openings, sunshine, the use of domestic appliances, people, and so on) as well as accumulated energy in a room (inertia of the heating system). Brand-new microprocessors collect, process, save data and then decide how long and when the heating needs to be on or off.

\* former Gaz de France

## ... Easy to install and use

The system is modular and adapts to any kind of heating system. In the cloister, ThermoZYKLUS has installed a wireless THZ system with a local partner. This solution doesn't require any wiring and works very well with the constraints of the buildings (too large walls to make holes, lengths of the zones to be watched).

ThermoZYKLUS has just fixed TRV valves on the radiators that used to have only manual valves and suggested its wireless SF valve operating mechanism – a record time installation!

The temperature is then set by steps of 0,5°C (about 1°F) on the wireless RF room sensors, that need to be installed in the controlled rooms. Finally, the entire system is monitored by the ZE central unit, in this case located in the centre of the building to ensure an optimal reception despite the building's complicated configuration.

The nuns after set the wanted temperatures and a specific time programming for every room. It was the automation of their installation that led on the one hand to energy savings and on the other hand to tranquillity thanks to blocked temperatures and an easy installation.



## The tests made by GDF SUEZ show 30% energy savings thanks to THZ

The adaptability of the system and the micro-variance regulation technology not only offer an exceptional level of thermal comfort but they have also reduced the energy consumption by 30% compared to the former situation, although the building wasn't fully furnished. These figures were validated by the sales representative from GDF SUEZ in charge of the religious Jeanne Delanoue congregation as he analysed the consumption curves with his customer. The study was carried out after a heating period, from October 2009 to May 2010, and weighted in function of the coldness of both winters to allow a valid comparison.

Extract of the study: Gas consumption by heating period

Heating period	Consumption	UDD*	kWh/UDD ratio	Corrected consumption / 2008-2009
2008-2009	1 372 788	2381	576,56	
2009-2010	1 252 205	2319	539,98	1 337 041

⇒ An energy saving of 84 836 kWh, which means a financial gain of 3 858 €, the average price during the period July 2009-June 2010 being 45,47 € per MWh.

\* Unified Degree Day

**The Return On Investment of this project is less than 2 years (1,83 years),** as the initial investment was 7 040 €.

For GDF SUEZ, "this solution really allows the customer to save energy while offering the residents a great comfort level". Moreover, the company has appreciated the collaboration with ThermoZYKLUS. "The ThermoZYKLUS team was very available and helpful during the installation. It has been a pleasure working with them".

## Description of the installation

- 21 SF wireless radiator valve operating mechanisms were installed instead of the thermostatic valves. They are controlled by the central unit and avoid any change in the set temperatures by the users or the opening and closing of radiators.
- 3 wireless RF sensors transmit temperature information to the ZE central unit via two FE radio receivers.
- 1 ZE central unit, heart and brain of the system, permanently processes the incoming information and anticipates evolutions in every zone. The central unit controls the solenoid valves by radio (868 Mhz, European standard) in real time.
- 2 FV radio amplifiers were integrated to reinforce the radio signal/wireless communication and to get rid of the problems due to the zone length (over 300 feet) and the thickness of the stone walls.

Thanks to the measuring software, the radio efficiency can be controlled every second and the receiving optimized.

As the chosen system for the congregation was the 100% wireless version, the installation was even quicker, which pleased the nuns as well as GDF SUEZ.



ThermoZYKLUS was created in 1999 in Munich (Germany) by industrial automation specialists. The company produces and sells a self adaptive heating regulation system for individual room control.

The THZ system is unique and much easier to install and use than anything else existing on the market. Patented in January 2000, the system optimizes the heating management of all kind of buildings: individual houses, apartments, offices, institutions, administration buildings (schools, town halls) etc.

ThermoZYKLUS is made of an engineers and technicians team established in Bavaria and France (Montmorency, 95), and also relies on a wide partnership network throughout France.



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