

iSERVcmb Best Practice

Electricity savings of 20 % of HVAC consumption per year through continuous in-house system maintenance and monitoring.

Building number 21

LU



Introduction

This report summarizes the results of Building number 21's participation to the iSERVcmb project with regard to its HVAC system energy consumption. The report refers to the period from 2011 to 2014.

iSERV Achievements

Energy Savings

20%

Total HVAC electrical consumption reduction since participation



About 54195 kWh/a

“Partner’s involvement started at the end of iSERVcmb project. Savings achievements demonstrated are mainly due to continuous supervision of the HVAC system. In-house maintenance and control of the system are insured with daily attention. Consideration of the facility manager for energy efficiency has been demonstrated by HVAC system meters showing good performance. Energy savings of about 20% have been performed within the last two years related to HVAC electricity consumption.

iSERVcmb involvement helped in understanding the building HVAC, through the iSERVcmb spreadsheet, that allows a precise overview of installed systems.”

Owner of Building number 21

	Key Figures
Location	Luxembourg
Sector	Office
Construction Date	2004
Area iSERV	3613 conditioned m ²
EPC	N/A
Sub-metering Level	Party Metered
Data Frequency	Monthly
Data Collection Protocol	Manufacturer on board data collection system
Data Sending Protocol	Manually extract & send data to an address
Nature of Savings achieved	Improved HVAC Control Improved Operating Schedule
No. HVAC Systems	1
HVAC Components	<input type="checkbox"/> Heat Generators <input checked="" type="checkbox"/> Cold Generators <input type="checkbox"/> All-in-One Systems <input type="checkbox"/> Heat Pumps <input checked="" type="checkbox"/> Air Handling Units <input checked="" type="checkbox"/> Humidifiers <input type="checkbox"/> Dehumidifiers <input checked="" type="checkbox"/> Pumps <input checked="" type="checkbox"/> Storage Systems <input checked="" type="checkbox"/> Terminal Units <input checked="" type="checkbox"/> Heat Recovery <input checked="" type="checkbox"/> Heat Rejection

Building Profile

This building is an office block of 3613 m² conditioned gross internal area arranged over 5 stories. This building is part of a set of buildings located in Luxembourg. Floors 0 to 5 of the building are served by a main HVAC system with heating, cooling, and filtration. Offices are served by additional terminal units as reversible ceilings, providing heating or cooling depending on internal air temperature. Cooling is provided by one chiller, with a total Nominal Cooling Capacity of 400 kW. Two cooling towers provide cold water for the condenser. Free chilling by means of the cooling towers is used as often as possible to limit electricity consumption of the chiller. Heat is provided by means of district heating.

Building Management System installed

The building system is controlled by a BMS, and the system operates on an optimized stop and start. Data collection for this study has been provided manually by the facility manager. The system is operating 06:00 to 20:00, Monday to Friday. Outside of these hours, setback points are used.

Good performance due to optimized HVAC control

The data provided starts at January 2011 and includes energy consumption of heat and electricity (right). Small variation of rolling annual electricity might be interpreted in terms of occupancy of the building, i.e. numbers and activity of tenants. It appears that the HVAC system seems to be performing well relative to the benchmarks derived from its activities and areas.

From March 2012 starts energy savings related to HVAC consumption. At the end of 2013, system is saving approximately 15 kWh/(m².a) compared to early 2012.

Artificial lighting shows a rolling annual electricity consumption of approximately 17 kWh/(m².a). This issue might induce additional savings if more efficient lighting is implemented. Additional savings of 7 kWh/(m².a) could be feasible so as to achieve a good performance.

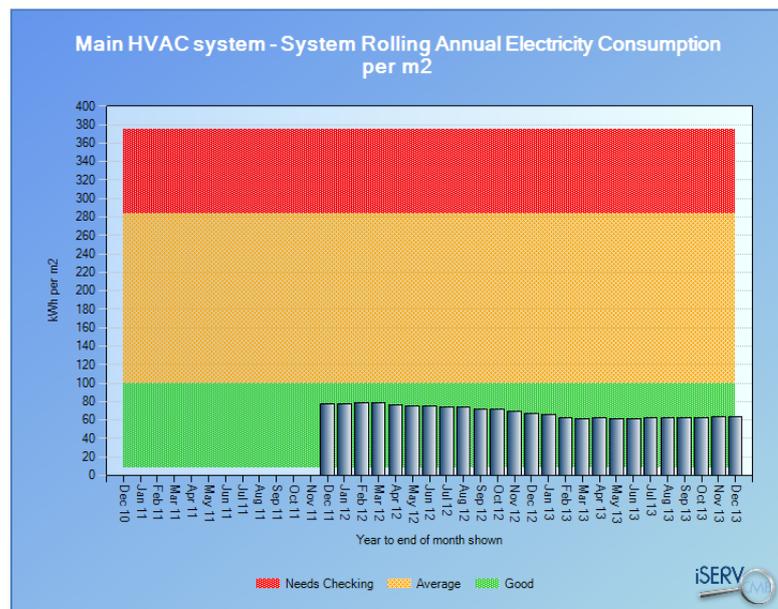


Figure 1: System rolling annual electricity consumption

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how energy efficient are you really?

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