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nearly Zero-Energy Sports Facilities

Practical and tested solutions paving the way for nearly zero sports facilities in 7 Countries

Newsletter n.3

November 2016



nearly Zero-Energy Sports Facilities - focus on pilots

AFE - Florence Energy Agency (IT)



San Marcellino Swimming Pool

The Municipality of Florence, as owner of some of the city sport facilities, has decided to include some obligations of investment in energy saving and efficiency measures in the tender process for awarding the management of sport facilities.

Florentine Energy Agency made the energy audit of the three sport facilities involved in the n0e-sport project: the municipality used data from the audit to include specific obligations in the tenders to assign the facilities. In order to win the tender, managing companies had to commit to implement some specific energy efficiency measures during their management period. This is a great achievement for the municipality and for the n0e-sport project in Florence. San Marcellino Swimming Pool was constructed in 1970's. It is characterised by 2 sphere-shaped structures hosting swimming pool (with bleachers, changing rooms, small gym) and gymnasium (basket/volleyball court, bleachers, changing rooms), connect by two-storey reception area with bar.

After the first Investments were made, the following improvements can be observed:

Pool Area water management, 12.000 euro investment, less 40% of water consumption, payback time 2 years; New water filter, 2.100 euro investment, saving 42.000 kwh/year, payback 4 months; Valves automatic system for water temperature (29,2 degrees), 2.100 euro investment, payback 1 year; New Automatic consumption monitoring system, 12.000 euro investment.

Some pictures before the pilot implementation



Some pictures after the pilot implementation





nearly Zero-Energy Sports Facilities - focus on pilots City of Vukovar (CR)

Sport hall Borovo naselje

Sport hall Borovo naselje is a multifunctional sport facility. Total area of the sports hall is 6.287,6 m². Building has installed system with solar panels for domestic hot water. Thermal insulation of the building and exterior doors and windows are below the recommended standards. This causes large heat losses and high-energy consumption for heating of the building. Facility is energy class D. Annual consumption of electrical energy is 74.113 kWh, natural gas consumption 142.604 kWh, water consumption 1.000 m³.

Sport center Lijeva Bara is multifunctional sport facility. Total area of the building is 547,54 m². Thermal insulation of the building and exterior doors and windows are below the recommended standards. This causes large heat losses and high-energy consumption for heating of the building. Renewable energy systems are not installed. Facility is energy class D. Measured annual gas consumption is 47.892 kWh, measured annual water consumption is 212 m³, electrical energy consumption is 15.651 kWh.

In energy audit several solutions were proposed. During the first months of the project pilot phase, replacement of the ordinary radiator valves with thermostatic valves was performed: 52 valves in sports center Lijeva bara, 75 valves in the sports hall Borovo.

The estimated energy saving for this two facilities is 8.424 kWh annually. Estimated payback period is 4,5 years.

A picture before the pilot implementation



A picture after the pilot implementation



nearly Zero-Energy Sports Facilities - focus on pilots Derry City & Strabane District Council (UK)



Brooke Park Leisure Centre

Brooke Park Leisure Centre is a stand-alone building of rendered block cavity construction. The building has two separate wings linked by a corridor, the squash court area to the left is two story whilst the main reception area to the East is single story with a double height multi-purpose sports hall. Both sections of the building have flat roofs. It is approximately 1049m² floor area and has a multi-purpose sports hall, squash courts, male & female changing areas, steam room Fitness Suite and ancillary accommodation.

Derry City & Strabane District Council took the initiative to implement smart heating sensor technologies at this facility to capitalise on energy savings. As part of this initiative a smart heating control system called “heatboss” will be deployed in Brooke Park Leisure Centre. This will see Derry City & Strabane District Council become the leader applying smart systems to civic buildings in order to engage citizens and change their behaviour.

Picture of the facility



heatboss® has been developed using innovative technology to avoid this misuse of heating fuel in existing buildings, ensuring that the heat is only on within the required rooms at the times that it is needed, and each room is only heated to the temperature which suits its specific needs. heatboss then maintains each room’s target temperature well to avoid wastage. With heatboss, the building’s heating can be monitored and controlled through any web-enabled device anywhere. So, the person/people who want to monitor/ control the heating do not need to be on site to do so.

Last year’s gas bill for the Brooke Park LC (during the changeover from oil to gas) was in the region of ~£13K. It has been assumed that the heating requirement alone (without hot water) accounted for ~£11.6K for the year. There are 25 radiators in total (22 of which are manual valves), plus 2 changing rooms that are heated by pipework only and the remainder of the rooms have an air-handling unit or else no heating. The solution implemented has the 22 manually controlled valves changed to TRVs and heatboss controlling all 25 radiators.

Brooke Park LC cost analysis





nearly Zero-Energy Sports Facilities Final Conference in Florence

The Future of NZEB in EU sport facilities

Thursday 24th November 2016

Venue: Palazzo Sacratini Strozzi, Sala Pegaso, Piazza Duomo, 10, Florence

08.30 **Registration**

09.00 **Welcome and opening**

- Municipality of Florence, Andrea Vannucci, Council member for Sport
- Regional Government of Tuscany, Federica Fratoni, Regional Councillor for Environment and Soil Defence
- Italian National Olympic Committee (CONI), Eugenio Giani, Florence Representative
- Video interview with Italian former professional player

10.00 **n0e-sport: lessons learnt**, Florentine Energy Agency, Sergio Gatteschi, Director.

10.30 – 11.00 **Coffee break**

11.00 **Future vision for energy efficiency in sport facilities – participative session:**

Partners and stakeholders present recommendations and guidelines for future NZEB on the basis of experience from the n0e-sport project and pilots. Experiences vary from contractual conditions for sport facilities management and energy efficiency measure to involvement of ESCOs, and to energy efficiency improvements.

At territorial level, experiences from the following organisations will be presented:

- Municipality of Florence
- Sport Halls (San Marcellino, Arrigo Paganelli)
- School gym (scuola media statale “Leonardo da Vinci”) Municipality of Rufina

At International level, representative from the following organisations will intervene:

- CLEAN Cluster – Denmark
- Regional Agency for Energy and Environment of Algarve (AREAL) – Portugal
- City of Eindhoven – Netherlands
- City of Vukovar – Croatia
- Cyprus Energy Agency (CEA) – Cyprus
- Derry City & Strabane District Council – United Kingdom

13.20 **Wrap up session and Conclusions**

13.30 – 14.30 **Buffet Lunch**

14.30 – 18.00 **Study Visit to:**

- San Marcellino Swimming Pool: improvements after the implementation of energy efficiency solutions during the pilot phase
- University of Florence Solar Plant: concentrating solar power technologies



green technology

integrated package

NZEB initiatives

ESCOs

long term solutions

pilot actions

Nearly **ZERO**-Energy Sport Facilities

renewable energy

public authorities

service providers

tested solutions

energy efficiency

reduced energy consumption