



Energy renovation of the Ivan Glinšek kindergarten Maribor, Gledališka unit

Municipality of Maribor

- Improving the quality of the building envelope
- More energy-efficient heating, ventilation and air conditioning system
- Savings: 27 % Greenhous gas emissions and 16 % energy



Benchmark Oil-based heating system

- 97.3 t CO₂e/a
- 26.2 toe/a

GPP 2020 tender Natural gas-based heating system

- 71.2 t CO₂e/a
- 21.9 toe

Results - savings:

- 4.3 toe/a
- 42.5 toe/contract
- 26.1 t CO₂e/a
- 261.3 t CO₂e/contract

Green public procurement

- The green public tender was published in June, 2013 on the Municipality of Maribor website.
- The procurement included the Ivan Glinšek kindergarten, Gledališka unit in city of Maribor.
- The energy renovation is in accordance with the detailed Programme of measures, annexed to the Ordinance of the plan for air quality in the territory of the Municipality of Maribor (Official Gazette of the Republic of Slovenia, No. 108/13)



Procurement approach

Type of procurement procedure: Open procedure

Subject matter: Energy renovation of kindergarten

Selection criteria:

The tenderer/contractor shall carry out work properly, in line with the quality standards of the profession and in accordance with applicable regulations of the Republic of Slovenia (laws and other regulations, standards, technical instructions, recommendations and norms), and shall keep all required documentation in accordance with these regulations.

The tenderer must possess sufficient technical and human capacities, and must submit references as evidence.

The tenderer must demonstrate that he meets the conditions and that he will take into account basic environmental standards imposed by the Regulation on green public procurement.

Technical specifications:

The following measures to improve the energy efficiency of the Gledališka unit of the Ivan Glinšek kindergarten in Maribor had been envisaged in the renovation of the building:

- energy renovation of roofing and façade, and installation of new building components (like windows);
- renovation of the boiler room;
- installation of thermostatic valves;
- upgrading of the ventilation and air conditioning system.

A more detailed description was given in the Annex of the tender documents (inventory list).

Minimum required general warranty period:

The minimum warranty period is at least ten years for the renovated envelope, and at least three years for all other works. The warranty period shall begin from the date of successful high-quality acceptance of work, i.e. the date when the contractor removes all the shortcomings stated in the report on a quality inspection of the facility.

Award criteria:

Subject to the conditions set out in the tender documentation, the tenderer that shall offer the lowest price for the subject matter of the green procurement shall be selected.

Market response:

The Municipality of Maribor received 2 tenders.

Development of criteria

The procurement was conducted in accordance with the applicable legislation regulating the fields of public procurement and public finances, as well as the area that has been the subject of the procurement.

Results

The following scopes of measures to improve the energy efficiency of the Gledališka unit of the Ivan Glinšek kindergarten in Maribor have been implemented in the renovation of the building:

- Improving the quality of the building envelope, including energy renovation of roofing and facade and installation of new energy-efficient building components (replacement of external doors and windows). The windows are wooden with exterior aluminium cladding, with glass 4/14/4/14/4 and with warm edge, $U_g = 0.6 \text{ W/m}^2\text{K}$, $R_w = 36 \text{ dB}$. Facade: tested façade system with ETA certified rock wool slab, in the same composition as the primary facade, thermal insulation thickness of 3–20 cm, depending on the location for insulation. Asbestos padding had to be removed from the façade.
- Installation of energy-efficient heating system with the reconstruction of boiler room and replacement of energy source (natural gas instead of fuel oil); thermostatic valves have been installed on the existing radiators. Heat pump is particularly used for heating in a time before and after the heating season.
- Improving the energy efficiency of the ventilation and air conditioning system by the installation of the heat pump.
- Increasing the efficiency with the installation of split system air conditioner – heat pump (air/water) for hot water heating and energy-efficient cooling and heating of all the rooms.

	CO ₂ e emissions	Energy consumption
Low Carbon tender	71.2 t CO ₂ e/a	21.9 toe
Benchmark	97.3 t CO ₂ e/a	26.2 toe
Savings	26.1 t CO ₂ e/a	4.3 toe
Savings during the ten-year contract period	261.3 t CO ₂ e	42.5 toe

Calculation basis

- Benchmark: oil-based heating, poor quality of the building envelope. Annual energy consumption:
234 125 kWh of fuel oil
70 474 kWh electricity
- Low carbon solution: energy efficient natural gas-based heating system and heat pump. Estimated annual energy consumption:
171 276 kWh natural gas
83 853 kWh electricity (due to the heat pump, the electricity consumption of the renovated building increased)
- Emission factors (see GPP2020 energy contracting calculator):
Slovenian electricity mix: 0.34461 kg CO₂/kWh
Fuel oil: 0.312 kg CO₂/kWh
Natural gas: 0.247 kg CO₂/kWh



Lessons learned

- In 2013, we had little experience with the implementation of green criteria for construction works. We learned a lot through this implementation and at the GPP 2020 workshop held at the Municipality, organized by Umanotera in 2014.
- Based on our experience with this project, we found out that the use of heat pump increased electricity consumption after the renovation. This is due the heating with the heat pump at the time before and after the heating season. Also, the kindergarten had increased its capacity in the kitchen with the preparation of meals for eight kindergartens, which may be an additional reason for the higher electricity consumption.

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The procurement is available on the website of the Municipality of Maribor:
<http://www.maribor.si/povezava.aspx?pid=8058>.

About GPP 2020



GPP 2020 aims to mainstream low-carbon procurement across Europe in support of the EU's goals to achieve a 20% reduction in greenhouse gas emissions, a 20% increase in the share of renewable energy and a 20% increase in energy efficiency by 2020.

To this end, GPP 2020 will implement more than 100 low-carbon tenders, which will directly result in substantial CO₂ savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

About PRIMES



Across six countries in Europe; Denmark, Sweden, Latvia, Croatia, France and Italy, PRIMES project seeks to help municipalities overcome barriers in GPP processes, many of which lack capacity and knowledge.

PRIMES aims to develop basic skills and provide hands-on support for public purchasing organisations in order to overcome barriers and implement Green Public Purchasing. This will consequently result in energy savings and CO₂ reductions. – www.primes-eu.net



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