GPP 2020 | procurement for a low-carbon economy

Supply of solar protection mechanisms

Metropolitan City of Rome Capital

- Supply of indoor roller curtains for the new office of Metropolitan City of Rome Capital
- Less energy consumption for the summer cooling
- Less CO_2 emissions

Benchmark

- 28.0 t CO_2 e/ year
- 144.2 toe/ year

GPP 2020 tender

- 17.2 t CO_2 e/ year
- 88.7 toe/ year

Results

- 10.8 less t CO_2e emissions/ year
- 55.5 toe energy savings/ year

Image source: Metropolitan City of Rome Capital

Foto: dreamstime.com

www.gpp2020.eu

Contract tendered

- Indoor roller curtains.
- The purchase was realized through an agreement with CONSIP within the category "Furniture and complementary furnishings" (lot 6). The purchase was ordered by Metropolitan City of Rome Capital in July 2015.
- The agreements are contract models signed by CONSIP on behalf of the Italian Ministry of Economy and Finance. Within the agreement, the awarded suppliers of call for tenders, accept to satisfy the orders of the different Public Administration authorized to use the "On line Purchases" system.
- Overall expenditure: € 634,779 (exluded VAT).
- Amount of supply: 7,089 m².

Procurement approach

The Special Tender Specifications for the supply of furniture was realized according to the CAM (Minimum Environmental Criteria) "Offices furniture". Within the CAM "Building constructions", the blackout curtains are considered as an efficient system for the reduction of the energy consumption for the summer cooling.

Technical Specifications	Award Criteria
Roller blackout curtains. Aluminum boxes for the roller spooler and rails. Possibility to modify the penetrating light with different intermediary positions. 100% fabrics of glass fibres or polyester or other material with a fire resistance class ≥1. 95% darkening power; solar shading class 2.	Economically most advantageous tender.

Criteria development

The new office of Metropolitan City of Rome Capital is located in a tower building with 28 floors, finished at the beginning of 2015. The building has technologies and systems that guarantee a lower energy consumption for the heating, cooling, domestic hot water, lightening and process energy compared to the conventional buildings. The external coverings are double-glazed, with continuous wall. Windows cover most of the building envelope.

In order to reduce the trasmittance of the solar light (τv) of the window wall, so as to reduce the energy needs for the summer cooling, the Purchasing body decided to buy blackout curtains for the whole building (more than 7,000 m²), as foreseen by the CAM "Building constructions", which requires the use of solar protection mechanisms with a solar shading class ≥2.

Results

	CO_2e emissions	Energy consumption
Low carbon solution	17.2 t CO_2e/year	88.7 toe/year
Benchmark	28.0 t CO_2e/year	144.2 toe/year
Annual Savings	10.8 t CO_2e/year	55.5 toe/year
Savings for the life time of the curtains (10 years)	107.6 t CO_2e	555.1 toe

Calculation basis

To calculate the year savings of energy consumption (and then of CO_2e) we have used an open source software suggested from the European Solar-Shading Organization, the "Textinergie" (http://www.textinergie.org/).

The software gives broad indications on the year energy savings due to the use of solar protection mechanisms. With the input of simple dimensional data into the software, it was possible to estimate 38.5% energy saving in one year.

The typical floor of the building is 1,290 m², multiplied for the 26 floors heated/cooled (2 parking floors), the total is 33,540 m².

Each year, the building has an average energy consumption of 50 kWh/m². Hence, the annual energy consumption is 1,677,000 kWh. The annual energy consumption with the blackout curtains is 1,031,355 kWh with an energy saving of 645,645 kWh, that means 55.51 toe.

About the CO_2 saved, the building uses electricity from renewable resources (in part self-produced). The conversion factor developed within the project GPP2020 "Carbon and energy savings calculator for energy contracting" is the following:

- 0.01667 kg CO_2e/kWh (electricity from renewable resources)

Thus, CO_2 saved is 10.76 t/year.

Results:

- 55.5 toe/year saved
- 10.8 t/year CO_2e saved

Lessons learned

The use of solar protection mechanisms are a good solution for the reduction of the energy consumption of public buildings, especially for those with continuous window wall. The cost for the blackout curtains will be amortized in three years thanks to the energy saving.

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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 CO_2 savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

About PRIMES

PRIMES Green Public Procurement

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 CO_2 reductions. – www.primes-eu.net

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