

# NZEB PILOT ACTION 1

## Marija Bistrica, Croatia

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eCentral project

Energy Efficient Public Building  
in Central Europe

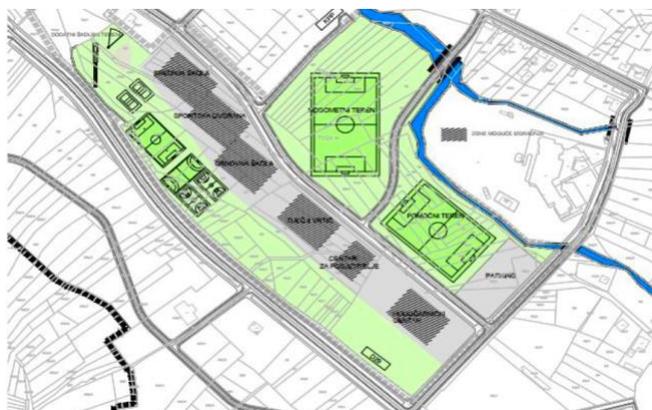
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February 2021



## Primary and music school, Marija Bistrica

### PLANNED LOCATION FOR THE SCHOOL CONSTRUCTION



GENERAL INFORMATION	
<i>Use of the building</i>	Primary and music school with a sports hall
<i>Owner</i>	Municipality of Marija Bistrica
<i>Built in (year)</i>	To be constructed
<i>Under protection as cultural heritage</i>	-
<i>GPS</i>	Latitude = 46 Longitude = 16.11

CLIMATE DESCRIPTION	
<i>HDD 20</i> ( <a href="http://www.degreedays.net">www.degreedays.net</a> )	2747 (Zagreb)
<i>CDD 26</i> ( <a href="http://www.degreedays.net">www.degreedays.net</a> )	77 (Zagreb)

ENERGY PERFORMANCE	
<i>Availability of energy performance certificate</i>	Not available yet
<i>Energy Performance Classification</i>	A+ (according to Eprim Classification)

RENOVATION COSTS	
<i>Costs of renovation (€)</i>	Approximately 11 mil € (without VAT)
<i>Costs per m<sup>2</sup> GFA (€/m<sup>2</sup>)</i>	1.483 €/m <sup>2</sup>
BUSINESS MODEL - Crowdfunding	
<i>Planned</i>	PPP - Design-Build-Finance model

ENERGY PERFORMANCE DATA OF RENOVATION	
<i>Gross floor area (GFA)</i>	13.947 m <sup>2</sup>
<i>Heated net floor area (NFA)</i>	6.131 m <sup>2</sup>
<i>Heated gross volume</i>	N/A
<i>Heated net volume</i>	N/A
<i>S/V</i>	N/A

NZEB TARGET REQUIREMENTS - CROATIA	
<i>Primary energy (heating, cooling and electricity)</i>	55 kWh/m <sup>2</sup> year
<i>RES (minimum % of primary energy consumption generated from renewables)</i>	100 %



## 1. GENERAL DESCRIPTION

Due to the constant growth of municipal population and devastating damage caused by the recent earthquake on municipal buildings, the local government of Marija Bistrica is faced with public demands for higher quality of public services. Existing primary and music school are becoming too small, technically obsolete and are lacking a hall to provide sport and recreation activities for students.

To address this growing demand for public school and educational services the municipality planned to construct a new, modern nZEB building in accordance with national educational standards. This way, the municipality would be able to provide public educational services for up to 600 students.

## 2. ENERGY RENOVATION STRATEGY

Although the nZEB standard for educational buildings is set at 55 kWh/m<sup>2</sup> and 30% of renewable energy production, the municipality decided to go beyond that and required the building to be designed to produce 100% of energy from local renewable energy sources. Continental Croatia does not have one predominant source of renewable energy so different combinations come into consideration (solar, biomass, geothermal).

PPP screening report initially estimated total costs for construction of primary and music school with a sports hall and outdoor sport facilities at approximately EUR 11 million (without VAT).

## 3. FINANCIAL MODEL

The goal of eCentral's pilot action was to perform an assessment of whether a public-private partnership (PPP) model is likely to offer better value for the public than traditional public procurement (i.e. value for money analysis (VfM)). Therefore, a PPP screening report and Public Sector Comparator (PSC) analysis were made to determine if and which PPP model would be the most adequate and affordable for the municipality.

PSC analysis proved that Design-Build-Finance (DBF) model would be more suitable than the traditional model for construction of the new primary and music school with a sports hall in Marija Bistrica. Next steps in the process include development of DBF model terms of reference, project contract (with financial structuring, financial model, risk allocation, service standards, payment mechanism, guarantee drafts) and preliminary design of the school.