

NZEB PILOT ACTION 1

Stupnik, Croatia

eCentral project

Energy Efficient Public Building
in Central Europe

February 2021



Primary school, Stupnik

PLANNED LOCATION FOR THE SCHOOL CONSTRUCTION



GENERAL INFORMATION	
<i>Use of the building</i>	Primary school with a sports hall
<i>Owner</i>	Municipality of Stupnik
<i>Built in (year)</i>	To be constructed
<i>Under protection as cultural heritage</i>	-
<i>GPS</i>	-

CLIMATE DESCRIPTION	
<i>HDD 20 (www.degreedays.net)</i>	2747 (Zagreb)
<i>CDD 26 (www.degreedays.net)</i>	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 8 mil € (without VAT)
<i>Costs per m² GFA (€/m²)</i>	1.500 €/m ²
BUSINESS MODEL - Crowdfunding	
<i>Planned</i>	PPP - Design-Build-Finance model
ENERGY PERFORMANCE DATA OF RENOVATION	
<i>Gross floor area (GFA)</i>	5.573 m ²
<i>Heated net floor area (NFA)</i>	4.644 m ²
<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 ² 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 non-existence of primary schools in Stupnik, the local government is faced with public demands for construction of municipality's own school. Students from Stupnik have to attend schools in the City of Zagreb for which the municipality has an organized transportation.

To address growing demands for construction of municipal public school and educational services local government plans 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 360 students.

2. ENERGY RENOVATION STRATEGY

Although the nZEB standard for educational buildings is set at 55 kWh/m² 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 school with a sports hall and outdoor sport facilities at approximately EUR 8 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 school with a sports hall in Stupnik. 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.