

<u>Site visit assessment report</u>
<u>CC Tetovo - Emergency Center</u>
<u>Location: Tetovo</u>
<u>Date of visit: 19.10.2023</u>
<u>Prepared by: Petar Grncarovski, Darko Todorovic</u>

The “Emergency center” (Urgentni centar) is one of the buildings within CC Tetovo. The building is relatively new, opened in 2014. The EC building is supplied with thermal energy from the internal boiler room on liquid fuel - oil, which is located in the basement of the building.

Within boiler room two boilers have been installed. The boilers are same, both produced by “Mavil Global” type 800/201, made in Greece with a nominal capacity of around 930kW. The boilers are relatively new (2014) and generally in good condition. Within the boiler room, in terms of HVAC equipment, there are two headers for supply and return water, connections for the pipe’s branches, pipe lines with circulation pumps. Valves, circulation pumps and insulation in the boiler room are in good condition and should not be replaced. Domestic hot water boilers (2 x 2000 lit.) are placed in the boiler room, connected to hot water network.



The boiler room supplies only the EC building. In the building, the heating system is operational 24h/365days per year. Approximate annual consumption amounts to 17t of oil.

The boiler room is adequately set up and has sufficient surface area for the intended purpose.

The building has a classic two-pipe hot water heating system with lower distribution network. Cast iron radiators with radiator valves and radiator screws have been installed in the rooms.

The windows at the hospital are new (2014), made of PVC.

The district heat network is far away from the building, so that option is not realistic, as is the supply of the gas network that would deliver natural gas.

From the initially planned measures, it is proposed to replace radiator valves with new ones that have the possibility of installing thermostatic heads in an anti-vandal version, new radiator screws as well as the installation of a connection for future installation of gas boilers or district heating network. Bearing in mind that pumps are in general good condition instead of replacement, bypass valves should be installed in order to handle water flow changes during operation. It is also recommended actions on automatic controls in connection with the regulation of the temperature of the supply heating water in accordance with the outside air temperature.

An alternative to the natural gas connection is the installation of gas generators for external installation on the facade of the building with an CNG tank. According to the situation assessed during site visit installation of the CNG equipment is possible. Exact location of façade boilers, CNG tank and other CNG equipment should be checked and confirmed.

OBJECT	28-TE cor	KB-URGENTNA		
Location:		Tetovo	Date visited:	19/10/2023
Activity:	HTH	Hospital	By:	Petar Grncharovski
No.of objects within:	1			Darko Todorovic
Area, TOTAL [m2]:	5000		Property list:	
Dist.from gas network:	n/a		Estim.cost:	n/a
Dist.from district heating:	n/a		Estim.cost:	n/a
Estim.heat demand [kW]:	475 (only for radiators w/o DHW and AHU)			
Contact:		d-r Ilir Demiri, director	070/321-568;	
		Nagib, tech.department	075/383-100;	
CURRENT CONDITION				
General:	New object, facade w/ insulation and PVC windows (2014)			
Heating system:				
- Boiler room position:	underground			
- Neighboring facade:	available, to be checked if size is appropriate (for possible installation of outdoor gas boilers)			
- Boiler:	<i>year</i>	<i>manufacturer</i>	<i>capacity [kW]</i>	<i>burner</i>
unit 1	2013	Mavil Global 800/201, Greece	930	CIB Unigas Italy, 25-88kg/h
unit 2	2013	Mavil Global 800/201, Greece	930	CIB Unigas Italy, 25-88kg/h
unit 3				
- Fuel/Consumption [l/y]:	light oil (EL) / 17500			
- Regulation:	manual			
- Heating units/ number:	cast iron radiators / 250, apx			
- Heating units valves:	standard - manual (w/o temperature regulation)			
Altern.energy source:	CNG / sufficient space for CNG equipment in the yard			
Remarks:	modern system, designed for heating/cooling; when calculating heat demand, DHW and AHU to be considered; general urban-architectural project planned in upcoming year, central CNG station could be incorporated			
RECOMMENDATIONS				
General:	-			
Heating system:				
Option 1				
- Boiler room measures				
- Boiler room position:	remains same			
- Boiler room installation:	replacement of existing pumps with frequently regulated ones, standard valves to be replaced by balancing ones (where needed), in case of improper work, control valves to be replaced (where needed)			
- Regulation:	automatic depending on external/internal temperatures			
- Preparational works for new boilers installation:	connections for new boilers to be implemented in the boiler room design; existing light oil (EL) boilers remain as main heating source until new boilers are installed			
Option 2				
- Secondary heating network measures				
- Heating units:	dismantle from pipe network, adequately clean and install back			
	existing manual radiator valves to be replaced with thermostatic valves			
- Raiser:	valves replacement, balancing and drainage valves to be implemented			
- Pipe network:	spaces where heating not necessary, pipes to be adequately insulated			
Option 3				
- New boiler installation measures				
- New boiler:	install.of outdoor gas boilers on the neighbor.facade wall, if not possible on a convenient place nearby			
- Back-up heating:	existing light oil (EL) boilers remain as spare			
Remarks:	due to position of existing boiler room which is underground, outdoor gas boilers are recommended; therefore existing light oil boilers are to be utilized in exceptional cases ex.gas supply interruption, failure on the gas boilers etc.			