

Site visit assessment report

CC Tetovo – The ambulance service (incl. Dentist clinic and ATD)

Location: Tetovo

Date of visit: 19.10.2023

Prepared by: Petar Grncarovski, Darko Todorovic

The “The ambulance service” is one of the buildings within CC Tetovo. That 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 one boiler has been installed. The boiler is Thermostahl EN-330, Greece, with a nominal capacity of around 380kW. The boiler is outdated and generally in poor condition.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 pipe’s insulation in the boiler room are in bad condition and should be replaced.



The boiler room supplies only the subject object of the Clinical center.

The boiler room is adequately set up and has sufficient surface area for the intended purpose. Approximate annual consumption amounts to 15t of oil.

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

The windows at the hospital are partly replaced with PVC, old one are made of wood with massive infiltration issues. 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, replacement of insulation on pipelines within the boiler room, replacement of circulation pumps with new frequency-regulated ones (variable flow), as well as the installation of a connection for future installation of gas boilers or district heating network. 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 underground LPG tank. According to the situation assessed during site visit installation of the LPG equipment is possible. Exact location of façade boilers, LPG tank and other LPG equipment should be checked and confirmed.

OBJECT	29-TE cor	AMBULANTA		
Location:		Tetovo	Date visited:	19/10/2023
Activity:	HTH	Ambulance (daily shift)	By:	Petar Grncharovski
No.of objects within:		2		Darko Todorovic
Area, TOTAL [m2]:		1100	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]:		176		
Contact:		d-r Ilir Demiri, director	070/321-568;	
		Nagib, tech.department	075/383-100;	
CURRENT CONDITION				
General:	Non-insulated facade; wooden/plastic windows			
Heating system:				
- Boiler room position:	ground level			
- 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	2005	Thermostahl EN-330, Greece	383	Ecoflam-Italy, 12-25kg/h
unit 2				
unit 3				
- Fuel/Consumption [l/y]:	light oil (EL)		/	15000
- Regulation:	manual			
- Heating units/ number:	steel radiators		/	80, apx
- Heating units valves:	standard - manual		(w/o temperature regulation)	
Altern.energy source:	CNG		/ to be checked for sufficient space for CNG station nearby	
Remarks:	object belongs to Zdravstven dom, it is not part of Clinic Hospital, independent solution for CNG supply necessary or gas meter for consumption mesuring			
RECOMMENDATIONS				
General:	Energy efficiency measures on facade, roof and windows			
Heating system:				
Option 1				
- Boiler room measures				
- Boiler room position:	remains same, to be checked if it is appropriate for its purpose			
- Boiler room installation:	complete refurbishment of installation with implementation of frequent regulated pumps, new valves and temperature/pressure measuring devices, balancing and control valves, pipes insulation			
- 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) boiler 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 vallves 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 boiler is to be utilized in exceptional cases ex.gas supply interruption, failure on the gas boilers etc.			