

Children's Memorial Health Institute "Pomnik - Centrum Zdrowia Dziecka"

Location: **Warsaw, Poland**



Building characteristics

Purpose:

The Children's Memorial Health Institute ("Pomnik - Centrum Zdrowia Dziecka") is considered as the most modern children's hospital in Poland.

The institute was established in 1977 as a complex of specialised clinics, and since 1980 it has been providing its services as the multi-specialisation paediatric hospital.

The institute obtained the status of the research and development unit of the Ministry of Health, and therefore its activity includes the treatment, rehabilitation, scientific work, and training.

The conception of ventilation system

The project of the modernisation of the whole system was based on the completely new concept of the system and included a new arrangement of particular lines of the ventilation network. While defining the directives for the functionality of the system, particular emphasis was put on two aspects of its operation: the air quality from the point of view of its asepsis, thermal and humidity parameters, and the minimisation of the generated noise.

The realisation of the directives on the air quality resulted in the application of a series of filters, starting from the air intake module, equipped with the dust chamber, shared by the whole system, through the EU9 filters installed in the ventilation units, through the HEPA filters mounted at the final sections of particular ducts. The proper humidity of the supplied air, in particular in winter, is maintained by the devices for zone humidifying based on the steam humidifiers that introduce the steam directly to particular lines of the ventilation network. To minimise the noise level in adjacent rooms, the project plans a series of sound insulating sections that constitute an integral part of the ventilation unit.

Project AHUs functions



General characteristic of used devices		
Number of AHUs	12	
Configuration	supply-exhaust, Glycol system EU9, Silencers	
Operational parameters		
Total AHUs heating capacity [kW]	562	
Total supply AHUs electric power consumption [kW]	23,531	
Total exhaust AHUs electric power consumption [kW]	18,045	
Total supply Air Flow Rate [m ³ /h]	54 600	
Total exhaust Air Flow Rate [m ³ /h]	45 400	
Average SFP [kW/m ³ /s]/[W/m ³ /h]	0,76	2,74
Noise parameters for loudest units at 250Hz		
	Supply	Exhaust
Inlet [dB]	82,6	81,5
Outlet [dB]	66,2	85,4
Environment [dB]	65,5	61,4

Solution provided by VTS

To comply with the specific requirements of the ventilation installations that result from the purpose of the system, VTS used the ventilation units equipped with glycol systems for energy recovery.

Due to this solution the complete separation of the supply air from the exhaust air was assured, which is the basic requirement for systems operating in aseptic rooms. All the units that supply the air to the hospital rooms are equipped with noise suppressors. It provided full acoustic convenience both for the patients and the personnel.

