

Sanctuary of the Divine Mercy Kraków, Poland

Building characteristics

Purpose: The John Paul II hall is a part of the Sanctuary of Divine Mercy located in Cracow Łagiewniki - the biggest sacred complex under construction these days. It mainly serves as an auditorium for conferences, screenings of films, theatre and musical performances aimed at commemorating the heritage of the Polish Pope.

Area: 2 020m²

Cubic measure being handled by VTS units: 7 765m³

The conception of ventilation system

Due to the character of the room the design of the ventilation system was prepared on the basis of solutions applied in theatre facilities. An additional possibility of free interior design in the hall resulting from the application of a set of sliding walls forced the designer to create a system enabling control over the organization of airflow between appropriate zones of the room. Thanks to a set of additional air dampers the system can operate in two modes:

- using the facility for organizing meetings and conferences excluding the backstage and (foyer - supply/exhaust of maximum amount of air to/out of the hall.
- using the facility for organizing performance, directing part of supplied air to foyer and stage.

The economic aspect related to the demand for heat and cool energy within the required heat comfort parameters had a great influence upon the configuration of AHUs and the way of distributing air. Designing a 'bottom -top' airflow system enabled reduction of difference between the temperature required in the working area and the supply temperature. As a result the amount of energy indispensable for maintaining the heat comfort parameters was reduced by approx. 40%. Since there were doubts concerning the possibility of frequent occurrence of excessive humidity



generated by the participants of organized meetings the designer introduced an additional function of drying air.

Solution provided by VTS

VTS suggested applying an AHU from the VENTUS typeline which was equipped with a double system of energy recovery: a rotary regenerator and a mixing box as well as a heating and a drying set. As for the way of air treatment and the capacity, the AHU was perfectly adjusted to the needs of the ventilation design. The value of the system's SFP coefficient (1.02W/m³/h) in connection with significant number of components installed in the AHU and relatively high airflow resistance (550Pa – supply, 720Pa – exhaust) indicates low energy consumption by fan sets.

General characteristics of used devices

Number of AHUs	1		
AHUs type	VS		
Configuration	Filters, Rotary Regenerator, Mixing, Heater, Cooler, Heater, Fans		

Operational parameters

	Energy recovery	No energy recovery	Economy [%]
Total AHUs heating capacity [kW]	86	224	62
Total AHUs cooling capacity [kW]	64	80	20
Total supply AHUs electric power consumption [kW]	6		
Total exhaust AHUs electric power consumption [kW]	5		
Total supply Air Flow Rate [m³/h]	10 500		
Total exhaust Air Flow Rate [m³/h]	10 500		
Average SFP [kW/m³/s]/[W/m³/h]	3,68	1,02	

Noise parameters for loudest unit at 250 Hz

	Supply	Exhaust
Inlet [dB]	81	74
Outlet [dB]	79	88
Environment [dB]	70	78





**SANKTUARIUM BOŻEGO MIŁOSIERDZIA
W KRAKOWIE ŁAGIEWNIKACH**

Kraków, dnia 24.04.2006 r.

LIST REFERENCYJNY


Stwierdzamy , że Firma VTS Clima z siedzibą w Kosakowie koło Gdyni, dostarczyła centrale wentylacyjne i klimatyzacyjne typu VS, CV-A i CV-P na Bazylikę oraz na pozostałe obiekty Sanktuarium Bożego Miłosierdzia w Krakowie Łagiewnikach. Bazylika została poświęcona przez Jana Pawła II 17 sierpnia 2002 r.

Oceniając efekt końcowy produktów oraz prac, stwierdzamy, że poziom, jakość i terminowość są na najwyższym poziomie.

Polecamy firmę VTS Clima jako poważnego partnera w realizacji inwestycji.

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Z poważaniem


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