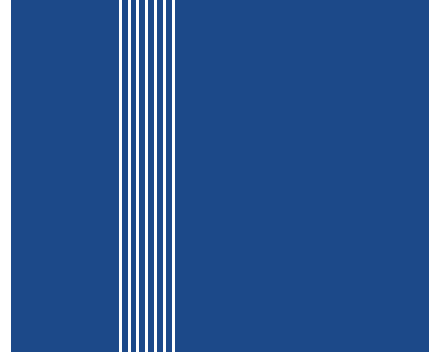


# PRACTICE REPORT 20

Application examples for planners of complex construction projects

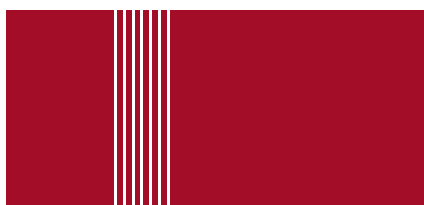


**VENTAFLEX®**

More efficiency in air guidance



## Underground air ducts for hospital



**Application area for VENTAFLEX®:  
Installation of an optimum space-saving supply  
and exhaust air system below the base plate**

## St. Elisabeth-Hospital in Leipzig: underground air supply through five duct dimensions

Finely coordinated ventilation of different areas with an air volume of a total 8820 m<sup>3</sup>/h at a flow velocity of 4,51 to 5,50 m/s

### Task

The ventilation system is designed as a unit. The single sections like e.g. the foyer or the multi-purpose room have to be regulated separately by a volumetric flow controller in the supply – as well as the exhaust air system. The supply air is introduced low-impulsed with natural convective plumes due to floor displacement outlets. The distribution of the air guidance net should be made below the base plate of the multi-purpose room with special pre-insulated GRP ducts.

Because of the Lambda value 0,022 W/mK (WLG 022) of the VENTAFLEX® air ducts, as illustrated in the following described practice comparison, the decision for the system was made quickly.

Additionally the easy handling at installation (a 3 m assembly in a dimension 650 mm only just weighs 30 Kg) and the subsequent ease of maintenance (easy cleaning of the smooth duct surfaces) were further advantages of the VENTAFLEX® system.

### Practice comparison VENTAFLEX® insulated spiral duct

Requirements for an insulated air guidance system:  
Length: 50 m  
Series: 630  
Insulation thickness: 5 cm  
 $\Delta t$ : 20 K

Therefore the following performance has to be applied:

VENTAFLEX® air duct: 900 W  
other duct: 1.430 W

### VENTAFLEX® solution

The used products:

VENTAFLEX® air duct, insulated in the diameters 650, 520, 420, 370 and 200 mm in a total length of approx. 150 m.

Among them were 27 pre-assembled components in 2 and 3 m length as well as diverse molded parts and custom-made special components – like curves following customers request made of 2 or 3 segments in the design of 22° and 78°.

Material: Ultrapure rigid foam, 45-50 mm

Inner- and outer coating: GRP (glass-fibre enforced plastic)

### Advantages due to the VENTAFLEX® system

- + **Certified hygiene conformity** of the ducts according to VDI 6022
- + **Individual adaption to the conditions** by customised production
- + **Saving of time at installation** by planning and pre-installation
- + **Comfortable cleaning** of the smooth surface of the GRP-material
- + **Up to 70 % less weight** – important for statics and handling and installation
- + **Reduction of the operating costs** – up to 40 % less energy loss, up to 10 % less pressure loss and up to 99 % less leakage loss