

Technical bulletin

Exhaust air systems



Applications

Where ignitable or harmful gases can form in outdoor structures, these structures must be provided with efficient ventilation. The appropriate accident insurance document «Safe entry and work in shafts, pits and ducts» provides as follows:

Before entry, ensure by artificial ventilation of the shafts and pits, that no potentially dangerous atmosphere exists in the area where people work. This can be achieved, for example, by evacuating gases at the lowest point by a fan until at least 20 air changes are completed. The drop in ventilation efficiency of long exhaust pipelines shall be considered. Maintain the artificial ventilation for as long as somebody remains in the shaft or pit and gases or vapors are present or can form.

Permanently installed exhaust systems in outdoor structures are used when the cost of a mobile ventilation system is too high. Important aspects for the reapropriate decision include the access frequency as the cost determining factor.



Technical architecture

SUVA Bulletin No. 66055 provides that ventilation systems must meet the following requirements:

A room is considered sufficiently ventilated artificially when the output of the ventilation system ensures 3 to 5 air changes per hour and the exhaust points are arranged directly beneath the ceiling and above the floor. With this configuration, 2/3 of the air volume shall be evacuated on top and 1/3 at the bottom.

If the artificial ventilation system is operated in certain intervals by a timer it shall be ensured that the ventilation starts inevitably not later than when someone enters the space.

An intermittent ventilation system shall remain on at least for 10 minutes every hour.

The exhaust fans and their drives must not become an effective source of ignition when they are located in a potentially explosive zone or in an exhaust duct.

In addition to that, the design and configuration of the exhaust air systems from STEBATEC AG ensure that they do not disrupt operations, have no hydraulic impact and the system can be operated with little maintenance effort.

The designer sees to it that a balanced cost/benefit ratio is achieved for the customer. Care is also taken that neighbours will not be disturbed by noise or emissions.

The exhaust ducts are made of plastic and Inox material to ensure their long life in a potentially corrosive environment.

Advantage

As general supplier of outdoor structures of waste water systems, STEBATEC AG also applies its knowledge in exhaust air systems to the customer's benefit. The portfolio includes:

- planning
- manufacture and installation of exhaust air systems in waste water environments
- intelligent and practical control of exhaust air systems

Stationary exhaust air systems have several advantages, e.g.:

- Foul air and moisture are eliminated from the object and a distinctly better atmosphere produced in the structure.
- The improved atmosphere prevents the permanent exposure of concrete and steel parts of the structure to moisture, which extends their life.
- Due to pre-installation and automation, no extra cost is incurred for the operation of the system.
- Exhaust boxes of concrete ensure vandal-proof removal of the air from the structure.
- The axial motors have sufficient ATEX protection. They are placed inside the structure to protect them from vandals and for ultraviolet radiation.



Depending on the water level, the air is exhausted at different heights: right at the bottom, on the level of the metal cap or up under the ceiling.



The massive exhaust boxes of concrete provide efficient protection from vandalism.

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