Zip·a·Duct

Fabric ventilation ducts

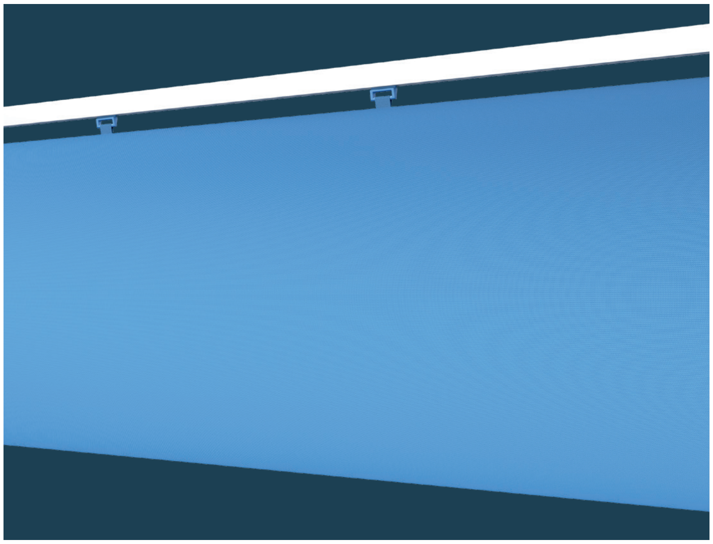
FabFlow™

With FabFlow™, the air exits the duct through the permeable fabric surface. The air is driven by thermodynamic forces, preventing drafts in the occupied zone. This results in a high level of comfort.

The density of the air drives the air dispersion. To ensure proper mixing without drafts the ΔT should not exceed 4°C [7.2 °F] when using FabFlow™ as the primary flow model.

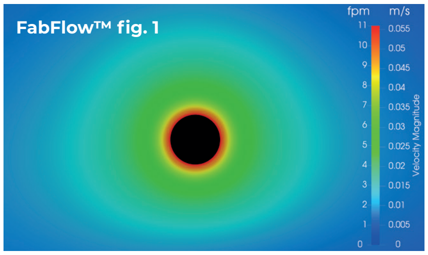
As a secondary flow model it is often used to prevent condensation on the duct surface and/or dust from settling on the duct.

As a primary flow model, the typical applications are areas highly sensitive to drafts and for comfort ventilation. It is often found in working rooms in the food industry, laboratories, professional kitchens and offices, often with a low ceiling heights, and the air distribution is generated based on temperature differences only.

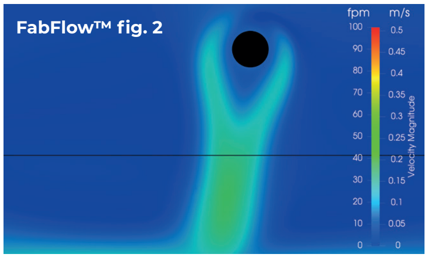


Examples of CFD simulations with FabFlow™ at 3 m [≈10 ft] above floor level. The occupied zone is indicated by the black line 1.8 m [≈6 ft] above floor level. Cold air exits the duct and moves downward due to thermodynamic forces. The gentle air diffusion accumulates and develops a uniform airflow as temperature difference increases. The airflow gains more momentum and the velocity increases with the distance from the duct.

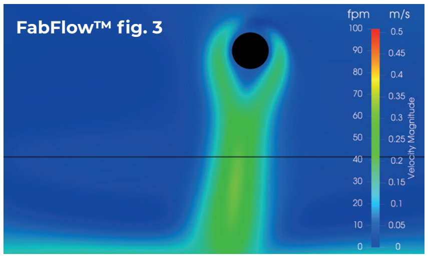
ΔT impact on air pattern



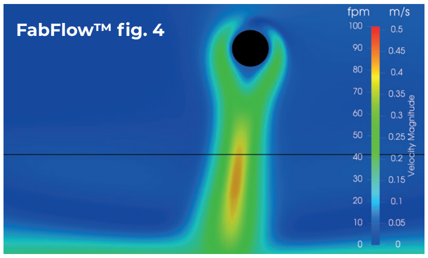
Air discharge through FabFlow™ of permeability 200 m³/h/m² [10 CFM/ft²] at 120 Pa [0.48 inwg]. Isothermal conditions.



Air permeability 200 m³/h/m² [10 CFM/ft²] at 120 Pa [0.48 inwg], cooling with ΔT of -1 K [-1.8°F]. High level of comfort is achieved.



Air permeability 200 m³/h/m² [10 CFM/ft²] at 120 Pa [0.48 inwg], cooling with ΔT of -3 K [-5.4°F]. Increased cooling capacity and draft still avoided.



Air permeability 200 m³/h/m² [10 CFM/ft²] at 120 Pa [0.48 inwg], cooling with ΔT of -5 K [-9.0°F].

Micro-perforation enables a higher cooling capacity while keeping the occupied zone draft-free.