



Ducted fume hoods are ventilation systems with the primary function of exhausting chemical fumes, vapors, gases, dust, mist, and aerosols. Its secondary function is to serve as a physical barrier and provide the operator protection from chemical spills, splashes, exposure, run-away reactions, and fires.

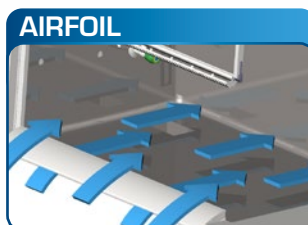
## ESSENTIAL PARTS OF A DUCTED FUME HOOD



**SASH**  
A sliding window that can be adjusted to maximize the hood's capture efficiency. Most hoods are marked with an optimum sash configuration during operation.



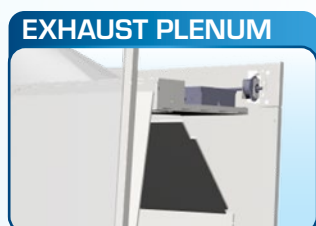
**FACE**  
The space between the bottom of the sash and work surface where the hood face velocity is measured.



**AIRFOIL**  
Streamlines airflow into the hood and prevents the formation of turbulent eddies that can carry vapors out of the hood.



**WORKSURFACE**  
Constructed from ceramic, epoxy, phenolic, polypropylene, stainless steel materials. Some designs use a laboratory benchtop, or the floor for floor-mounted hoods.



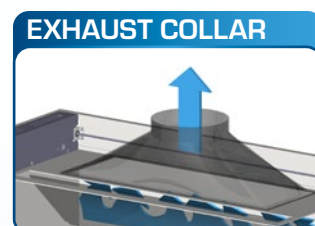
**EXHAUST PLENUM**  
Helps distribute airflow evenly across the hood face.



**BAFFLES**  
Keep the airflow uniform across the hood opening and optimize capture efficiency.



**HOOD BODY**  
Serves as the containment of hazardous fumes, gases, and vapors.

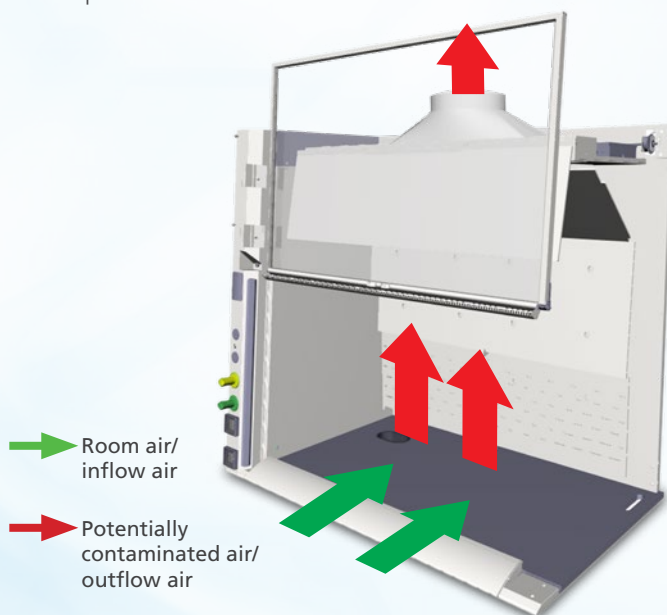


**EXHAUST COLLAR**  
Connects the fume hood to the ducting system.

## HOW DUCTED FUME HOODS WORK

The general airflow of a fume hood has the air enter from the face of the hood and out through the exhaust collar. An exhaust fan connected to the ducting system pulls air and unwanted substances away from the operator, out of the hood body, and exhausts them to the atmosphere.

The sash is set at the optimum configuration to maintain the recommended face velocity of 0.3 – 0.5 m/s. The airfoils and the baffles are added features that aid in the airflow.



### References:

- [1] Chemical Fume Hoods. (n.d.). Clemson University. Retrieved January 7, 2022, from [https://cufacilities.sites.clemson.edu/envsafety/training\\_Chem.php](https://cufacilities.sites.clemson.edu/envsafety/training_Chem.php)
- [2] How a Fume Hood Works | Office of Environmental Health and Safety. (n.d.). Princeton University Environmental Health Safety. Retrieved January 7, 2022, from <https://ehs.princeton.edu/laboratory-research/laboratory-safety/laboratory-equipment-and-engineering/fume-hoods/how-fume-hood-works#:~:text=A%20fume%20hood%20is%20a>

