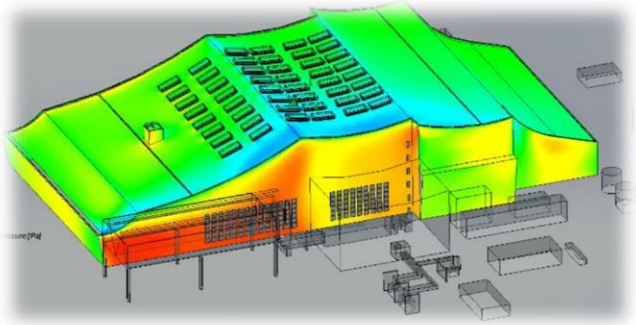
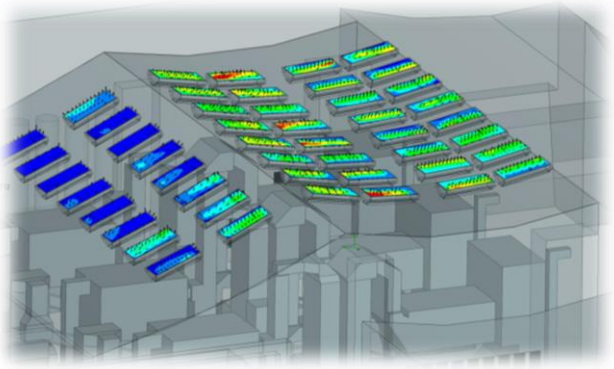
If you do not feel a difficulty with the air in your environment, know that you are breathing in a well designed and operated system. In a sense, ventilation is the beginning of air conditioning. As it provides comfort by heating and cooling, it carries the filtered air coming from the outside environment to the occupant area and your quality of life is also protected thanks to the clean air.



Natural ventilation can reduce energy costs for buildings in stable climates. To design qualified natural ventilation in the building, first of all, the climate and wind data of the region should be analyzed. Utilization of advanced atmospheric models, the climate data of the historical 50 years are analyzed, the correct boundary conditions determined become the most critical starting point for the design. In its simplest form, natural ventilation can work, albeit difficult, by opening the windows to provide cross ventilation of the wind or by creating a temperature difference with the right design even when there is no wind.



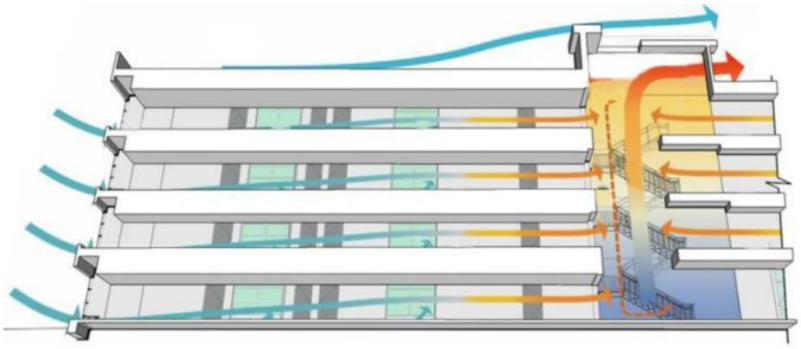
To model the natural ventilation:

- Daily temperature models,
- Seasonal wind velocity and prevaling directions,
- Annual sun angels,
- Layout definition of operable windows,
- Construction materials,
- Conditions such as occupants' comfort criteria should be considered.

In order to reduce energy costs, only natural ventilation design setup can sometimes be disadvantageous. While a hybrid scenario can be designed with the support of mechanical ventilation, sometimes completely mechanically ventilating the space can offer the lowest energy consumption. In some industrial facilities and clean rooms (pharmaceutical production facilities, operating rooms, laboratories, etc.), we only work mechanically to control the aging of the air or the rate of spread and accumulation of polluting gases.

What We Can Do for You?

We help you design effective and efficient ventilation that will create value for all occupants or shareholders living in your buildings. We have in-house experience, expertise, sub-calculation structure and process management experience to meet highly complex requirements from a routine design approach.



By offering concept suggestions based on experience at the very beginning of the design, we support the controlled development of the process at the first stage. In some cases, we can present our future suggestions with analytical approaches or computational fluid dynamics analysis as very practical. When we need to examine the big picture, we invite Alkazar's meteorology, energy engineers and all its experience to the meeting table. The aim is to provide you with the most appropriate design for your sophisticated project interests.

alkazar

TO BE YOUR MOST VALUABLE PARTNER...

ALKAZAR,

Reduce Cost

We deliver you good designs faster and at lower cost.

Focusing only on the user's living space, rather than ventilating much larger areas, allows us to balance air quality and energy consumption.

We provide independent advice so that all options are considered.

Increase Scenarios

We can report the most accurate location for an air purifier by optimizing different positions.

We visualize whether or not fume exhaust hoods will perform adequately depending on climatic and design conditions.

We independently test the accuracy of mechanical design criteria, taking into account the CO2 level or any other pollutants.

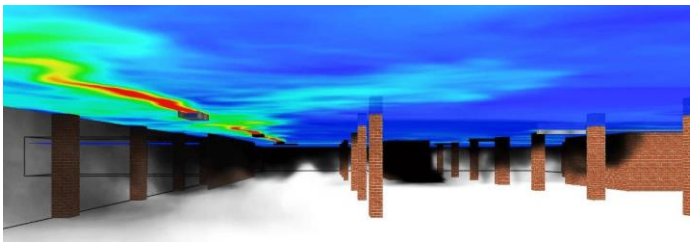
Power of Visualization

We watch all the details of pressurization and under-door air leaks together in visualization and presentation with videos, that the blown clean air cleans the environment in a laboratory without aging, and we decide the best.

Typical Application Contents

- General office contexts
- Smoke Management
- Industrial facilities
- Schools and Campuses
- Livestock Farms
- Laboratories & Clean Rooms

Our team is with you in determining the opening angle of the window that will benefit from natural ventilation for a small room or in large projects for natural ventilation openings to be built with the wind in a stadium. After the first stage of the project, much deeper and more complex investigations may be required, then we can overcome the incomprehensible processes in a short time with different numerical methods or practical analytical tools we have developed. We are quite free to develop innovative approaches, as the solution options we will offer will be impartial.



We balance many factors for qualified solution. Outside wind pressure may affect indoor air due to filtration. Air intake openings in a farm with animals can be operated best efficiently with a static design, with simple but accurate dimensions. Requirements may be that the mechanical design in your office environment can carry fresh air without noise, or it can be met by the low aging air movements of the large number of laminator and hepa filter designs required for clean rooms. The channel of supply to the user area is as important as the velocity of distribution of the air supplied by the fans in the room. A duct design where pressure losses will be reduced will ensure an efficient and energy saving design. Alkazar combines numerical and analytical approaches, simulation visualizations, and combines them in passive and active systems.

Where We Work?

We offer the most appropriate approaches for creative solutions by combining our own knowledge, your requirements, and possibilities.

Natural Ventilation: Double facade applications, industrial facilities, stadiums, schools, large shopping malls and atrium volumes

Mechanical Ventilation: Industrial pollution containment demands, conference rooms, clean rooms, laboratories, metro station smoke management systems

High Performance Enclosures: Data centers, operating theaters, museum protection rooms, patient isolation rooms and electronic clean rooms