



DESIGN SOLUTIONS



VENTÜER
Engineered Ventilation Products & Systems



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OUR MISSION

To supply engineered ventilation products and systems that enable our clients to create healthy, comfortable and code-compliant buildings.

Ventilation of indoor spaces has never been more important, with an increasing percentage of the world's population spending more time living, working and playing indoors.

Recognising the need for ventilation is easy. Delivering products and systems that create a healthy and comfortable indoor environment, comply with building code requirements, and work with the other building elements is not.

Ventüer works with architects, builders and installation contractors. Since 2009 we have been designing, manufacturing and guaranteeing ventilation products and systems for a wide range of commercial, industrial and residential construction projects.

When partnering with Ventüer, you can have confidence that the ventilation products and systems provided to your construction project are well designed, fit for purpose and code-compliant. We eliminate the risks associated with incorrect product selection or poor installation methodology, leaving you with high performing buildings that deliver health, comfort and safety to their occupants.

We take the responsibility, the risk and the care.

You take the credit for the successful end result.



STEP 1: PRELIMINARY DESIGN

The ventilation of a building is a crucial design element, and one that must be considered early in the design process. Ventüer assists with the design of effective and efficient ventilation systems right from the beginning.

NEW BUILD CONSTRUCTION

New builds are a blank canvas, and usually the first step is to identify the most appropriate ventilation strategy. Every site and building is different, and Ventüer can advise on the best way to capitalise on available natural ventilation, and the best way to incorporate mechanical ventilation alongside the desired architectural intent.

Building code requirements obviously need to be considered from the very beginning, and the preliminary ventilation design suitably sized to provide the necessary air change rates. Depending on the nature of your project, there may also be other requirements outside the scope of the building code which need to be considered.

Once a ventilation strategy has been identified, it's time to move on to preliminary product selection. Double or single glazed louvre windows? Inline ducted extraction system or through-wall fans? Fixed double-bank or electrically controlled single-bank weather louvres? Ventüer has a wide range of proprietary products to draw from and provides tools and advice for preliminary product selection.

We understand that it's important to maintain control over the cost of the systems and products being designed into a project, and we provide costings early on in the design process. This enables clients to successfully manage their budgets and ensure that they are getting true value for money. These costing exercises are also useful for demonstrating whole of life costs – although some products and systems may incur more capital cost to begin with, there can be rapid payback with increased efficiencies over the operating lifetime of the building.

IN SHORT:

- Ventüer assists with identifying the most appropriate ventilation strategy, capitalising on available natural ventilation, incorporating mechanical ventilation and maintaining the desired architectural intent.
- Ventüer offers guidance with preliminary product selection. We have a wide range of products, and provide tools and advice for correct product selection. We also provide costings early on in the process, helping our clients to manage their budgets

MODIFICATIONS OR UPGRADES TO EXISTING SYSTEMS

Our assistance is not only restricted to new builds. Buildings are often repurposed many times over the years, and Ventüer can assist with both performance upgrades and modifications driven by change of use. Generally the first step is to accurately survey the existing situation and determine how best to adapt any existing ventilation strategy to best serve the new requirements while minimising cost and structural changes. After checking the condition and performance of existing products and systems, Ventüer will advise on the most appropriate replacement and upgrades required to achieve the desired results.

IN SHORT:

- Ventüer assists with accurate surveys of the existing situation and determining if any of the existing system can be adapted in order to minimise cost and structural changes.
- Ventüer will advise on the most appropriate replacement and upgrades required to achieve the desired results.

STEP 2: DETAILED DESIGN

With preliminary design complete, it is time to move on to detailed design. Generally by this stage the project budgets are in place, the early designs for other disciplines are complete and the client has committed to the completion of the project.

Detailed design of the ventilation products and systems covers many different facets, a few of which are shown below:

- Visual Details
- Weather Tightness Details
- Coordination with Passive Fire Protection
- Coordination with Structural Designs
- Installation Methodology

Other design aspects such as surface finishing and colours of visible grilles and diffusers, glass types for louvre windows and controls for electrical components are all worked through and detailed during detailed design. Ventüer works closely with the various consultants on the project to ensure that the ventilation design will compliment, not conflict with, the other elements of the building.

SIZING & PLACEMENT

Correct sizing and placement of ventilation products is an important element of detailed design. Duct runs need to be detailed to avoid clashes with structural elements and other services. Louvres and grilles need to be correctly sized to visually align with other architectural elements whilst maintaining minimal pressure losses. Fans need to be selected that will deliver the required performance. Natural ventilation devices need to be located to best take advantage of convection currents and predominant wind directions.

WEATHER TIGHTNESS

Weather tightness details are a crucial part of detailed design. By its very nature a ventilation system is required to allow stale internal air out of a building and fresh outdoor in. However, at the same time there must be protection in place from wind driven rain and other moisture. The correct detailing of ventilation products such as louvres and turbine ventilators in the walls and roof of a building is critical to prevent water ingress creating health and safety hazards or structural damage. Ventüer has extensive experience in façade and building envelope design, and can advise on the best solutions for project-specific details.

PASSIVE FIRE PROTECTION

Coordination with the passive fire protection design is also important. In recent years, particularly since tragedies such as the Grenfell Tower disaster, preventing the spread of fire in buildings has been much better recognised. Ventilation systems are unfortunately often a weak point in the fire defence armour however – they penetrate otherwise impermeable fire walls and spandrels, and allow fire to travel along ductwork from one part of the building to another. Ventüer provides guidance and advice on the principles behind building code requirements and are experienced with detailing ventilation systems that do not compromise the fire consultants design.

INSTALLATION METHODOLOGY

Installation methodology can not be considered too early on in the design process, and should be finalised during the detailed design phase. While there are certainly methods of work that are best left to the installer to determine on site, the product supplier and building designer must consider how the ventilation system will first be fabricated and then installed, before a set of plans is issued for construction. Only too often we see projects both run over in cost and end up with reduced performance due to site changes that have been made necessary by the initial designers not thinking through the install methodology.

STEP 3: ENGINEERING

The term engineering can be used in many different applications, however for the purpose of ventilation system design we include it to mean;

- 1. Mechanical Design - including determining airflow performance and air change rates.**
- 2. Seismic Design - ensuring that in the event of an earthquake the ventilation system will remain safely secured and not compromise the allowable seismic movement of other building elements.**
- 3. Structural Design - particularly of elements such as louvres that are exposed to external loads such as wind pressure.**

The engineering of ventilation products and systems must go hand in hand with the other elements of the design. Having an experienced design team such as Ventüer on board early on can prove valuable as early design decisions can be quickly made based on experience with other projects, without the risk of having to make design changes later on due to structural inadequacies.

Ventüer uses proprietary design tools for mechanical design calculations. These tools enable rapid checking of product suitability and system demands. Our products are all performance certified, and can be guaranteed to deliver the predicted results.

We take responsibility for the structural design of our products, and do not just leave this element to the builder or structural engineer. Our shop drawings clearly show the necessary supporting structure and fixings, calculated to suit the site specific loads. These are backed by producer statements (PS1's) issued by certified and registered engineers.

Seismic design of non-structural elements (including ventilation systems) has come under increased scrutiny in New Zealand since the devastating Christchurch earthquakes in 2011. This disaster highlighted the danger that items such as ventilation ductwork can cause during an earthquake, and reinforced the need to ensure that rigid products such as windows and louvres do not interfere with the designed seismic movements of structural building elements. Ventüer has a wide range of experience in seismic detailing of ventilation systems, and includes it for consideration in both preliminary and detailed design.



STEP 4: CONSTRUCTION MONITORING

Successful design is not restricted to computer screens and office desks. Ventüer believes in the benefit of designers spending time on site, seeing their creations in reality and working with installation contractors to ensure systems are fixed and fitted correctly. A typical sequence of Construction Monitoring events is as follows:

As part of our guarantee to take the responsibility, the risk and the care, Ventüer assists with **site measuring and working through of detail changes on site**. We all know that construction is never perfect, and that there will invariably be details that need to be worked through and changes that need to be made on site. For Ventüer, this all comprises part of the design solution. We don't just leave it up to the installation contractor to figure it out on their own.

Pre-starts are regularly held before projects commence on site, to go over the shop drawings and ensure that details are both understood and can be practically accomplished. This step proves to be invaluable, as it catches potential issues early and minimises rework.

During the construction phase, while the ventilation products and systems are being installed, Ventüer can regularly visit site to **check quality and correctness of installation**. Too often the crucial parts are hidden by the end of the project, making it virtually impossible to carry out quality assessment. Being present while the work is being carried out offers many advantages over a single visit after the job is completed.

Commissioning of the installed products and certification of the performance results is critical to ensuring that code compliance is achieved and that the ventilated spaces will be as healthy and as comfortable as they were designed to be. Ventüer offers **as-built testing to check the final performance of the systems provided**, and hands this over to the building owner. Any faults or lower than required performance levels can then be addressed before final handover.



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