



**A World-First Concept - Creating a Healthy Air Environment for People -
Uniform temperature and humidity throughout the building; 99% elimination of viruses,
organic chemicals, and odors.**

This system complements heating and cooling systems such as central heating. It is presented as the world's first system to achieve uniform temperature and humidity throughout an entire building, while eliminating 99% of coronavirus, organic chemicals, odors, and other contaminants (tested and supported by evidence obtained at the Kitasato Research Center for Environmental Science). The system consists of: 1. ceiling fans, 2. air pass fans, 3. pull fans, 4. axial flow fans, and 5. titanium dioxide coating sprayed on interior walls. By operating the ceiling fans, axial flow fans, air pass fans (ventilation fans), and pull fans (intake fans), air is mixed throughout the home to equalize temperature and humidity and eliminate 99% of viruses and organic compounds.

Priced at USD 2,000 including all construction work (based on the JPY/USD exchange rate on September 3, 2026), the system is intended to create an ideal indoor air environment at low cost.

A U.S. patent has been granted (US12,535,084 B2). Patent applications have also been accepted and are currently under examination in Japan, Germany, the United Kingdom, Canada, Australia, China, and South Korea.

By warming interior wall surfaces, the system increases perceived temperature and achieves about 20% reduction in heating and cooling energy use.

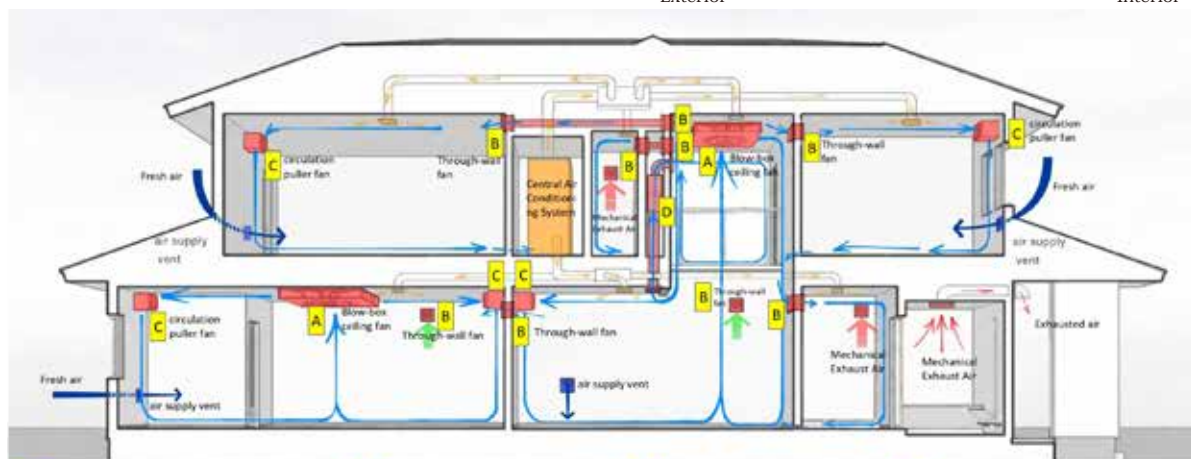
Through effective use of air pass fans and pull fans, the system is also designed to perform in large spaces such as schools, hospitals, gymnasiums, commercial facilities, arenas, and concert halls.



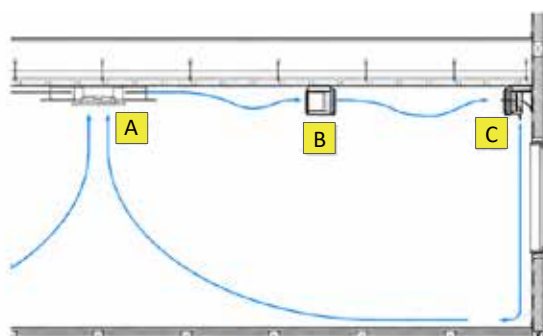
Exterior



Interior



Blow Box Concept - Residential



Blow Box Concept - Large Spaces



B Air Pass Fan



C Pull Fan



D Axial Flow Fan



Improving Residential Indoor Air with Blow Box (U.S. Patent US12,535,084 B2)

- Uniform temperature and humidity; 99% elimination of viruses, organic chemicals, and odors -

Modern homes are increasingly airtight and highly insulated. In the United States in particular, central heating systems commonly distribute heated or cooled air throughout the building via ducts. Even so, it is difficult to maintain a uniform temperature in building corners, toilets, and entrance halls.

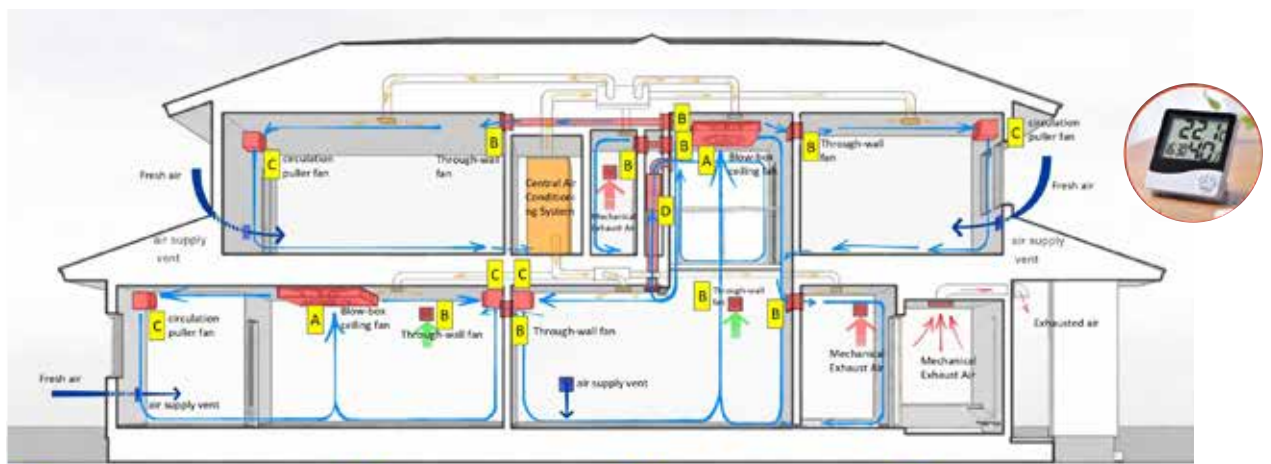
In many U.S. homes, concrete is poured directly on the ground and the building rises from the slab, so the floor is in contact with the earth. In summer, the approximately 15°C ground temperature helps keep the first floor cool; in winter, however, heat escapes. If the first floor is heated to an ideal temperature, the second floor can become warmer than necessary. This consumes significant heating and cooling energy while creating indoor temperature differences that reduce comfort.

Ducted air distribution also creates temperature differences because of air resistance in the ducts and the distance from the HVAC room.

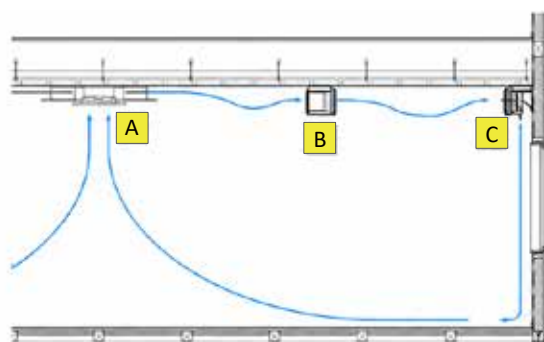
The Blow Box system addresses this by circulating indoor air so that it contacts interior wall surfaces. Air in the building is brought into contact with these surfaces about five times per hour, helping equalize both temperature and humidity throughout the building.

The result can be checked using temperature and humidity meters placed at approximately 20 points in each room. Temperature is controlled by adjusting the airflow of the pull fans installed in the air passes. An axial flow fan (D in the diagram below) is also installed near the center of the building. Separately from the ceiling fans, it draws air from the first floor and sends it to the second floor. Fine indoor particles, such as dead dust mites and mite allergens, are captured by filters to clean the air.

Filters are also installed in the air pass fans and pull fans. Airflow has been confirmed through experiments at Niigata Institute of Technology.



Blow Box Concept - Residential



Blow Box Concept - Large Spaces

A Ceiling Fan



B Air Pass Fan



C Pull Fan



D Axial Flow Fan





2. Eliminating 99% of Viruses and Chemical Substances

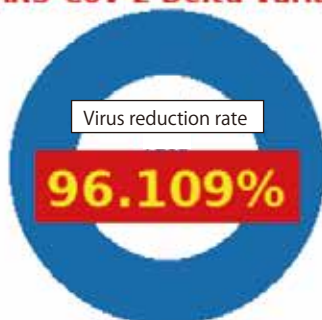
As indoor air is mixed by the Blow Box while coming into contact with interior wall surfaces, photocatalytic titanium dioxide applied to the walls comes into contact with the air. Moisture in the air (H₂O) separates into H⁺ and OH⁻, and OH radicals react with viruses and organic chemical substances, breaking them down into H₂O and CO₂. This eliminates viruses and chemical substances and provides a deodorizing effect. (Evidence is available from the Kitasato Research Center for Environmental Science.) In this way, Blow Box purifies the air while maintaining uniform temperature and humidity. Accordingly, viral infection inside the home is prevented by 99%.

This is proved to have been demonstrated in photocatalytic performance tests. With photocatalytic titanium dioxide applied, a Lumitester device (Kikkoman Corporation) is used to measure adenosine triphosphate (ATP) levels, and the results are used to verify virus elimination. Contamination by viruses and chemical substances in each building is checked individually.

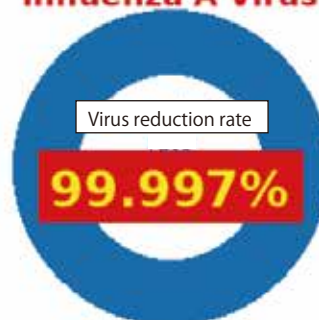
Titanium dioxide photocatalysis decomposes viruses, bacteria, odors, and more.

Photocatalytic Coating Performance Test Results

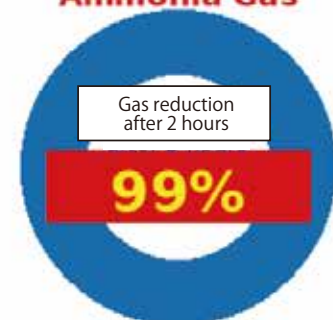
Antiviral Performance Test SARS-CoV-2 Delta Variant



Antiviral Performance Test Influenza A Virus



Gas Removal Performance Test Ammonia Gas



Each building is tested individually to measure volatile organic compound counts.

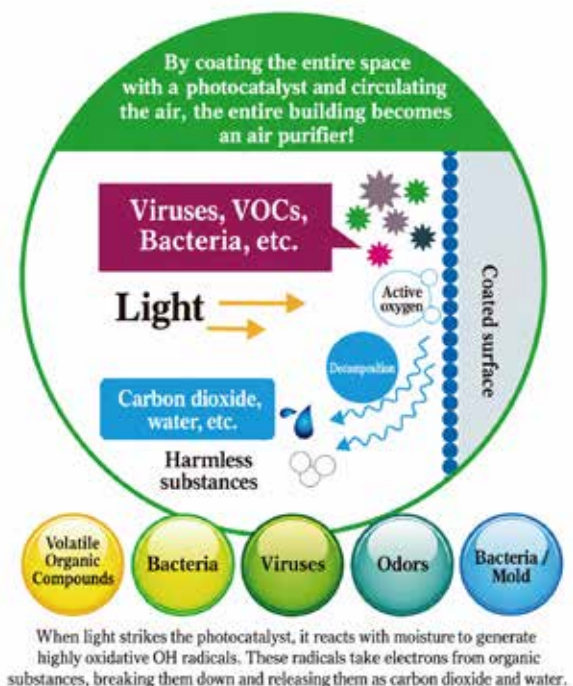


Recommendation from a Virus Research Specialist

This is a revolution in housing. There is no better COVID-19 countermeasure in the world. Applying this system in public buildings, workplaces and schools should substantially suppress COVID-19 infections.



M.D. Seiya Sato



3. Installation of Axial Flow Fans and Humidifiers/Dehumidifiers

The Blow Box system effectively removes virus-sized fine particles through photocatalytic action. Larger particles, such as dust mite allergens, are drawn through the axial flow fan, where they are eliminated by the combined action of the filter and photocatalytic treatment inside the fan.

For this reason, it is ideal to install axial flow fans within the walls, and this configuration is recommended for newly built homes. For existing homes or simpler installations, effective results can also be achieved using ceiling fans alone.

For humidity control, depending on the building conditions and local climate, one humidifier and one dehumidifier should be installed for approximately every 70 m² of floor area. This enables the indoor air humidity to be maintained uniformly within a range of 40% to 60%.



B Air Pass Fan



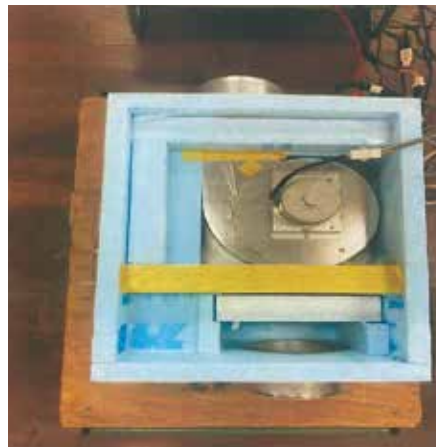
C Pull Fan



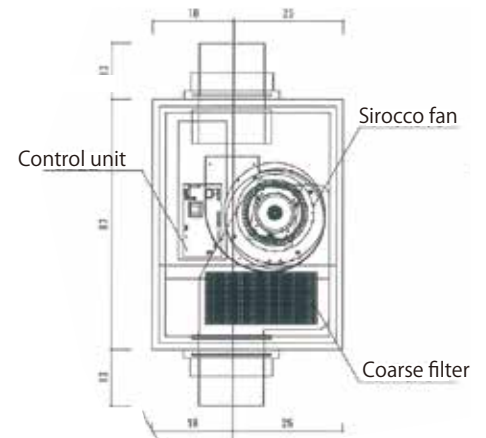
D Axial Flow Fan



Axial Flow Fan - External View



Axial Flow Fan - Internal View



Axial Flow Fan - Section View



Humidifier



Dehumidifier

4. Significance of Planned Ventilation

Outdoor-air ventilation is necessary because of occupants' breathing, chemical substances, viruses, and other factors inside a building.

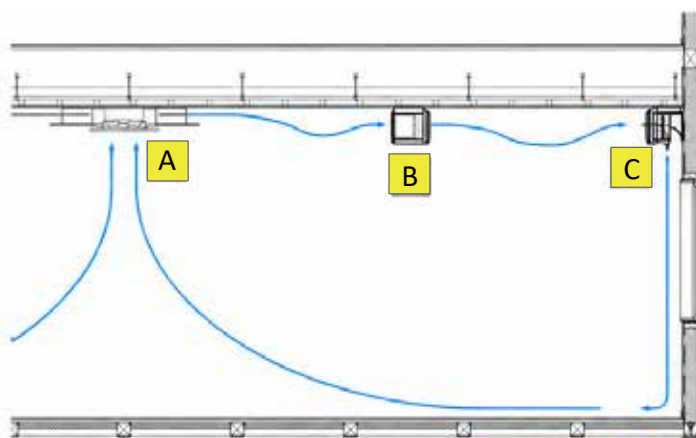
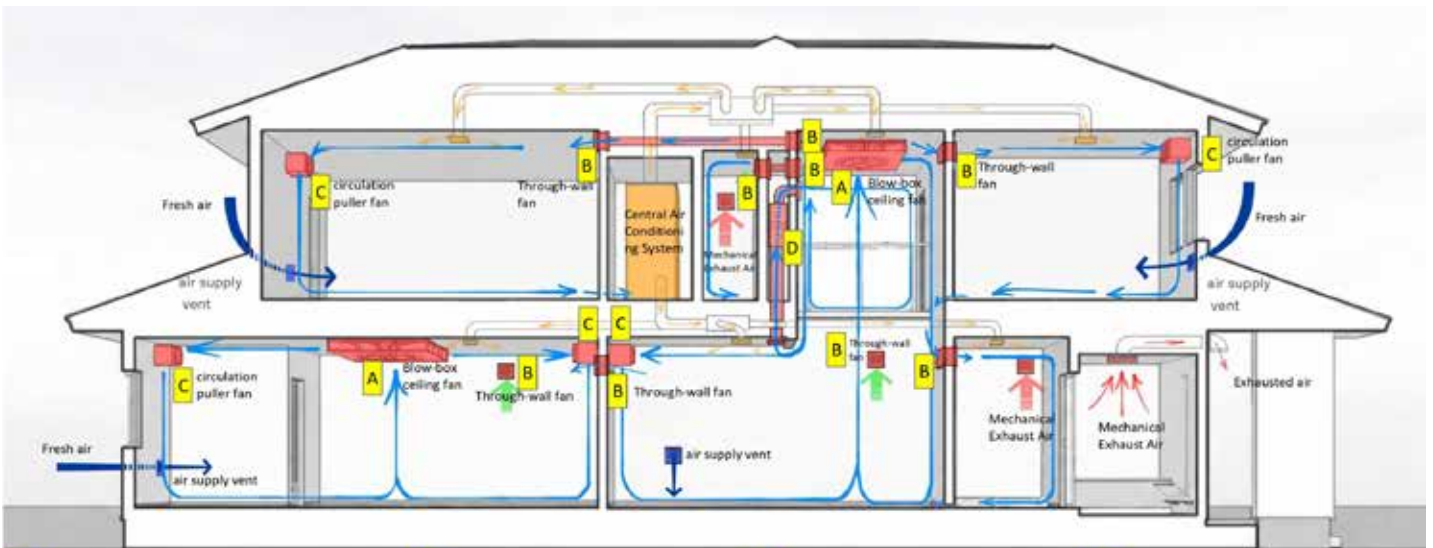
Blow Box uses Type 3 ventilation for planned 24-hour ventilation. Air inlets are provided at two locations on the first floor and one in each room on the second floor. Air is exhausted continuously for 24 hours from two toilets and the bathroom.

During heating, cold outdoor air enters the building, but once inside, it comes into contact with the air circulating along the interior walls via Blow Box and reaches an appropriate temperature. Heat exchange takes place indoors, preventing condensation.

With only intake and exhaust, airflow is one-directional and limited, so not all indoor air is ventilated.

By using Blow Box to mix the building's air before exhaust, all indoor air can be ventilated.

Without Blow Box, 24-hour planned ventilation cannot be achieved.



Blow Box Concept - Large Spaces

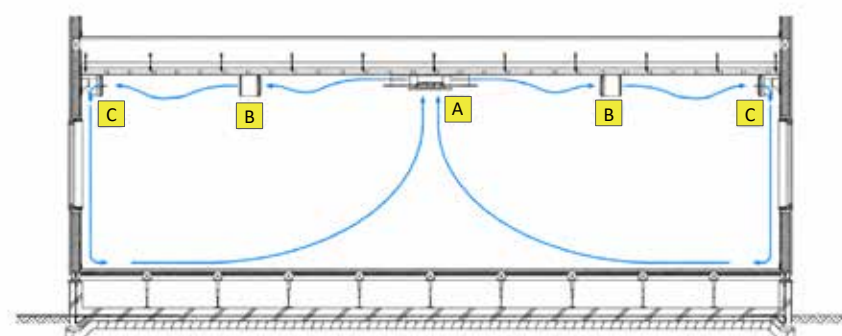
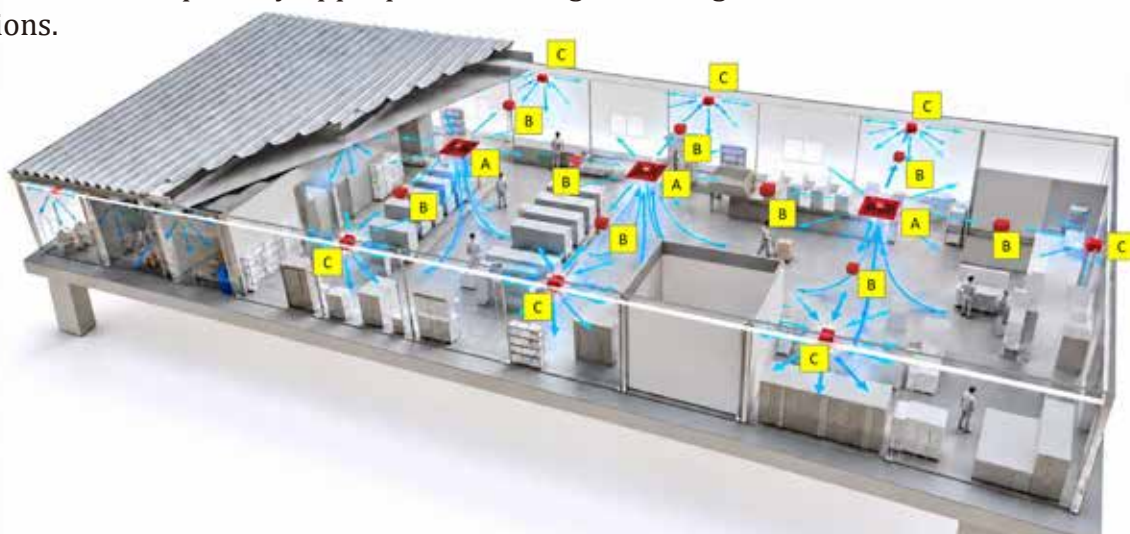


5. Expanded Applications of the Blow Box System Beyond Houses

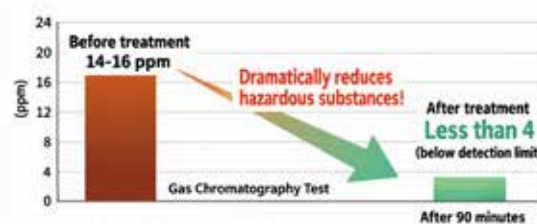
This system is well suited for large buildings and is expected to be effective in facilities such as schools, hospitals, commercial buildings, and factories. It creates an environment in which coronavirus and other infectious diseases do not spread, while also improving heating and cooling efficiency and maintaining uniform temperature and humidity throughout the building. In addition, the installation cost is very low.

The basic principle is exactly the same as that used in residential applications. In factories in particular, however, the system is also effective in eliminating chemical substances generated during operations. We have conducted tests at an actual printing factory and obtained experimental results demonstrating its effectiveness.

Based on the results from the actual factory installation and gas chromatography analysis, this system can be considered especially appropriate for large buildings. Axial flow fans are not used in factory applications.



Blow Box Concept - Large Spaces



Methylcyclohexane Reduction Test at a Printing Factory

Chemical substances reduced to 29%

Blow Box Installation Example - Printing Plant

Case Study	Factory
Total Floor Area 620 m ²	



Blow Box Installation Example - Office

Case Study	Office
Total Floor Area 940 m ²	

