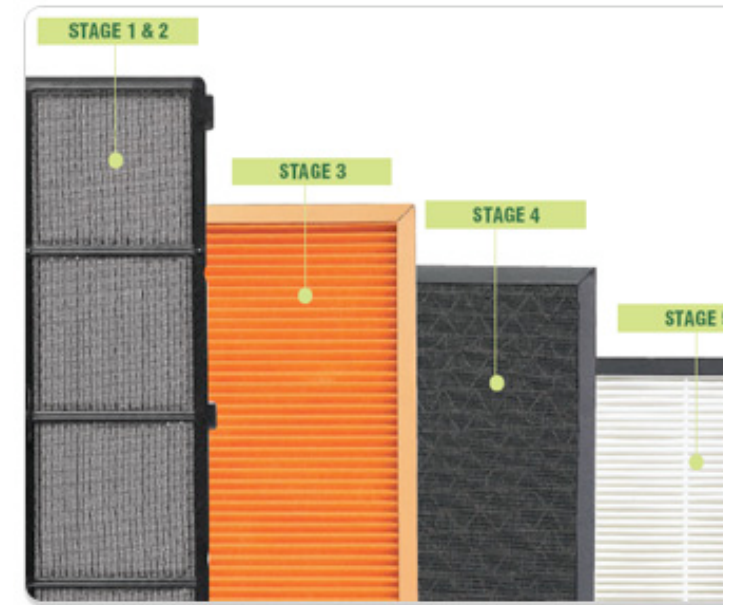


Air Wellness™ Technology

Overview

Nikken Air Wellness Technology is a comprehensive system that combines several mechanisms for purifying and treating air. These include:

- Multiple-stage air filtration, using a number of different approaches in a sequential arrangement.
- Negative-ion generation, producing an effect considered beneficial to health.
- A design that avoids the production of ozone, a common byproduct of many air-purifying systems.
- An air quality monitor and automatic operation to maintain a desired level of air quality.



Air filtration

The filtration systems in Air Wellness Technology are designed to reduce the contaminants identified as being common irritants in the enclosed spaces created by modern structures and contemporary levels of pollutants.

Air Wellness Technology has been thoroughly tested and is certified to reduce these contaminants at performance levels exceeding 97%.

It includes the following filtration methods:

Physical barrier/trap

A prefilter and fabric filter capture dust, pet hair and similarly-sized particles. The prefilter/filter combination is made of long-lasting, reusable material and has two important functions. In addition to serving as primary filtration, it traps larger particles before they can reach the ultrafine end-stage filters.

Activated carbon adsorption filtration

Carbon adsorption is a highly effective means of reducing contaminants. Adsorption is the capability of a solid substance to attract to its surface molecules of gases or solutions with which it is in contact. It differs from absorption, where the material is drawn below the surface, as with a sponge.

Highly efficient adsorption occurs when the adsorbent material is selected for the properties that maximize this effect. Charcoal carbon is ideal for adsorption because its irregular shape offers a large surface area.

Activated carbon or charcoal is carboniferous material that has been treated with oxygen to open up millions of tiny pores between the carbon atoms. The use of special manufacturing techniques results in highly porous carbon that has a surface area of up to 2,000 square meters per gram.

HEPA filter

HEPA (high efficiency particulate air) filters are an extremely effective air filtering technology. HEPA filters were first developed for use with nuclear reactors. They are now used in medical operating rooms, in high-tech industries (for example, computer chip manufacturing) and other applications where clean, pure air is critically important.

HEPA filters can remove at least 99.97% of airborne particles 0.3 micrometers (μm) in diameter. A HEPA filter is composed of a mat of randomly arranged fibers. The filter removes airborne particles from an airflow by one of three mechanisms: interception, where particles following a line of flow in the airstream come within one radius of a fiber and adhere to it; impaction, where larger particles are unable to avoid fibers by following the curving contours of the airstream and are forced to embed in one of them directly; or diffusion, an enhancing mechanism as a result of the collision with gas molecules by the smallest particles, especially those below 0.1 μm in diameter, which are thereby impeded and delayed in their path through the filter.

Effects

Filtration of indoor air has been shown to be effective in relieving or preventing a variety of respiratory discomforts.

Daily exposure to indoor pollution may be as much as 100 times as high as that of exposure to pollutants outdoors. This is due in part the increased amount of the day and evening spent inside (up to 90 percent of the total). Reducing indoor contaminants can have a dramatic effect on improving quality of life.