

CASE STUDY

Robust Inline Centrifugal Blowers Helping Customers Meet Vapor Intrusion Mitigation Regulations

The Situation and Opportunity

Vapor intrusion (VI) occurs when there is a migration of vapor-forming chemicals from any subsurface source into an overlying building. These vapors may accumulate in dwellings or occupied buildings to levels that may pose safety hazards and acute health effects.

The most common method used in VI mitigation is sub-slab depressurization. The concept involves creating a vacuum under the slab, then drawing the gas into the system where it can be discharged to a safe location. The system consists of a network of pipes that penetrate the slab into the soil. These pipes are connected to a specialized blower that discharges the collected gas to a safe location.

In 2008, the specialized blowers used for this demanding application were very expensive, large, heavy, awkward and inefficient. Environmental contractors, facility managers and site developers needed a better solution to mitigate VI.





OBAR SYSTEMS, Inc., established in 1985, is one of the first vapor intrusion mitigation companies in the United States, with tens of thousands of systems installed worldwide.



The Solution

Fifteen years ago, Gunnar Barr – owner of OBAR Systems, Inc. (OBAR) – designed and manufactured the [GBR 76 SOE](#). This product was the first in the industry to meet the safety standards, the vacuum/volume capacity requirements as well as feature a compact design, longer life and easy installation.

The GBR 76 SOE integrated the Nautilair® 7.6" Combustion Blower by Bison®. Gunnar's reasons for collaborating with Bison were four-fold:

- Nautilair blowers are engineered to handle combustible materials and exceed the VI mitigation specification of vacuums between 4"-20" of H₂O and flow rates between 100-500 CFM.
- Nautilair blowers have a wide range of speed control options.
- Bison had product available when it was needed for both testing and production.
- Bison customized its Nautilair 7.6" to OBAR requirements and offered integration support.

OBAR and Bison engineers collaborated extensively to customize and integrate the Nautilair 7.6" blower into the first version of the GBR 76 SOE.

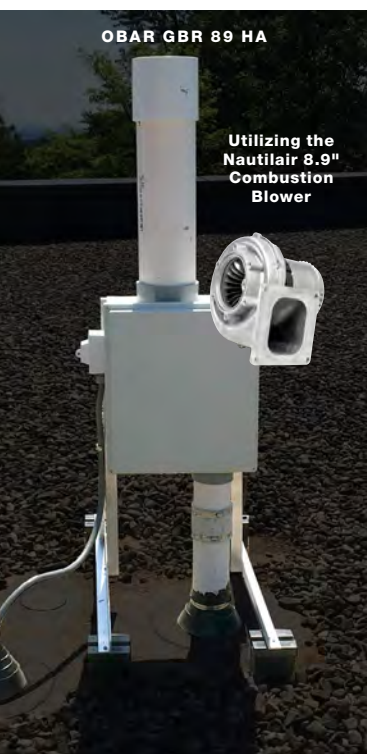
The customized version of the Nautilair 7.6" included:

- Viton seals, stainless steel shafts and bearings to protect the hardware from rust and corrosion when dealing with caustic gases
- Double-coated boards to protect against moisture
- Potentiometers to enable the OBAR product to be speed-controllable and tunable

After the launch of GBR 76 SOE, it became evident that OBAR had reached its goal. The company developed the most cost-effective VI mitigation solution that was the least expensive and the easiest product on the market to install. Plus, this product was helping its customers meet very strict EPA, state and local regulations.

Years later OBAR learned about the robustness of the product. Considering the demanding application of exhausting volatile organic compounds including trichloroethylene, benzene, perchloroethylene and methane, away from indoor spaces and discharging them into safe locations, it is notable that many units have exceeded their life expectancy of 4.5 years up to 12-plus years. That is nearly three times the expected life of the product.

Many OBAR products have exceeded their life expectancy of 4.5 years up to 12-plus years. That is nearly three times the expected life of the product.



"It was certainly a group effort to integrate the Nautilair 7.6" into our product. It has worked out very well. We had a lot of kinks and we overcame them together."

GUNNAR BARR, OBAR OWNER

The OBAR-Bison collaboration has progressed over the last 15 years, leading the way to customization of additional Nautilair blower models to meet OBAR's growing product development needs.

Programming, capacitor and remote potentiometer customization to the Nautilair 7.6" and 8.9" blowers have all made significant impacts on OBAR's continuous improvement efforts of the GBR 76 SOE as well as product line extensions – [GBR 76 UD](#) and [GBR 89 HA](#).

Inspiration – What's Next?

OBAR recently prototyped a new product, GBR 123, which specifies the Nautilair 12.3" High Energy Combustion Blower. The GBR 123 fills a small void in the company's current product line because it can handle VI mitigation for larger buildings (up to 1M sq. ft.) with homogeneous soil profiles.

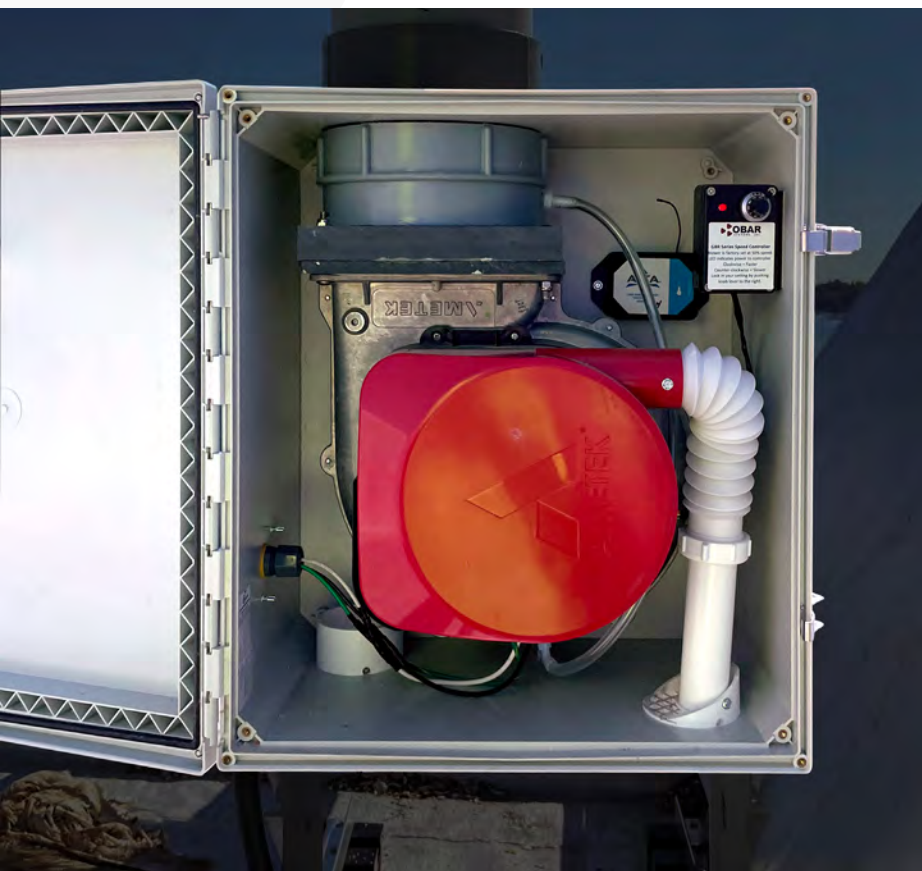
The GBR 123 value proposition is that one blower can be spread out over a very large area with multiple extraction points, providing significant savings for clients in terms of time, dollars and energy.

While the GBR 123 hasn't been released to the mass market yet, early adopters' tests report encouraging data. Buyers interested in this product can [email Matt Troeller](#).



OBAR GBR 123

Utilizing the Nautilair 12.3" High Energy Combustion Blower



OBAR GBR 123

Utilizing the Nautilair 12.3" High Energy Combustion Blower

"The relationship between OBAR and Bison has been excellent. There's a lot of benefit to working with a company like Bison on the technical side. Bison engineers can turn less technical information from the field into something helpful and actionable."

MATT TROELLER, OBAR WHOLESALE MANAGER

Results

Units Sold Have Doubled Every Year Since 2019

OBAR is experiencing significant growth, doubling its units sold every year since 2019. There are several key drivers supporting this growth:

■ An Unparalleled, Robust Product Line Among Competitors

OBAR developed a competitive product portfolio of centrifugal inline blowers for the VI mitigation industry — utilizing Bison engineers as an extension of their technical team.

The robust product line of four distinct VI mitigation blowers empowers OBAR to help its customers solve problems and achieve specific results. For example, if a jurisdiction requires a certain amount of sub-slab vacuum over the footprint of a building, OBAR clients now have an array of products from which to choose to achieve those results.

■ Becoming the Industry Standard

Due to OBAR's VI mitigation expertise and strong product portfolio, engineers nationwide now consider the company's products as the industry standard. In fact, many environmental contractors are specifying OBAR products into new construction and post-construction remediation projects.

■ Market Expansion

The OBAR GBR 76 UD product houses a Nautilair 7.6" blower which incorporates a universal drive motor. This Bison technology enables the GBR 76 UD to simply "plug and play" anywhere in the world because it can handle 60 or 50 Hertz and 120V or 240V — without alteration.

To learn more about OBAR's VI mitigation expertise and its products, visit their [website found here](#).



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