

Headworks/Odor Control Customer Focus

Purchase Order Amount: \$85,000

Where: Carmel Wastewater Treatment Plant,
Carmel, Indiana

Population of Carmel is 60,000 people and plant flow is 12 mgd (million gallons per day)

Project: Existing treatment plant had functioning headworks building but community growth and urbanization near the Carmel plant forced officials to plan construction of a new headworks facility for additional odor control. Hydrogen Sulfide (H₂S) fumes are very prevalent near the influent area of the plant and the existing headworks building was not containing the odor to satisfy the surrounding residential area. The headworks is a pretreatment area where influent (waste and sewage from residential and commercial use) enters the wastewater plant. This beginning process includes the screening of large solids and grit from the waste. The fumes from pretreatment are very toxic and require special handling.



Construction of this plant in 2010 was done with Federal grant funds, which requires the use of American-made products. The total cost of the project was \$5 million and the fans used amounted to approximately \$85,000. The project engineering was done by Jones & Henry Engineers from Carmel, Indiana and Toledo, Ohio. The Toledo sales representative, Ron Ottney from Ohio Air Systems, was instrumental in fan selection and getting the Hartzell FRP fans specified. The general contractor, Thieneman Construction, awarded the HVAC portion of the project to Bright Sheet Metal due to their low bid. Bright worked very closely with the Indianapolis sales rep, Ed Ebenger of E. J. Ebenger Sales Company, to receive pricing and submittal drawings. Ed also worked with Ron Ottney to ensure that original specifications were met. The use of local engineers and contractors was required due to this being a municipal project.



Fiberglass Louver

Timing: The completion time of the project from engineering to installation was 1-1/2 years. This is typical of any wastewater project.

Issues: Confined spaces in the headworks area required specific ventilation solutions to exhaust fumes and to control the pressures in certain rooms. The ventilation fans needed to be able to withstand the corrosive fumes and be explosion proof due to possible sparking.



Series 40 FRP Inline Centrifugal

Solutions: Corrosive duty fiberglass (FRP) fans were specified by the engineer due to their resistance to hydrogen sulfide fumes. FRP fans provide better resistance and longer service life than a coated aluminum fan. Several different models of wall and roof mount fans were recommended by Ron Ottney. Series 88 Fiberglass Exhausters were wall mounted in conjunction with a special FRP mounting boot, FRP hood, rubber gasket, and damper. In addition, several of the Series 88 fans were specified with HartKoate, a special abrasive/erosive resistant coating developed by Hartzell, which provides additional protection from moisture in corrosive atmospheres.



Series 88 Wall Mount FRP Exhauster

Several other fans were system designed for roof exhaust including a Series 40 FRP Inline Centrifugal fan in an upblast configuration with FRP stack cap and curb panel and a Series 37 FRP Roof Exhauster. Both of these fans were designed with ASTM construction for spark resistance.

Advantages: Series 88 (also 82, 83, and 87) FRP Dome Exhausters are a unique fan for corrosive applications. They feature the Hartzell FE one-piece solid fiberglass wheel which provides higher efficiency and lower noise than a multi-piece wheel. This fan can be used in a roof or side mount configuration. Fiberglass exhausters also offer other key advantages:

- Spec basis of design – Packaged solution for the Series 88 with FRP mounting boot, louver, and hood designed and built by Hartzell Air Movement. In addition, Hartzell provides a unique advantage due to our ability to provide a FRP louver/damper for fresh air intake or exhaust air. The louvers/dampers can also be provided with blade/jamb seals to provide a low-leakage application when required.
- There is very limited competition for FRP roof exhausters and some competitors may not qualify as American-made for Federal funded projects.

Other Advantages:

- The Hartzell difference is being able to provide all fans, fiberglass and non-fiberglass, for a WWTP project. As a manufacturer that has a broad product line in addition to the specialized ability to provide custom solutions for customers, we have a solution for any phase of wastewater treatment.
- The ability to provide motor options (including explosion proof), ASTM Construction, and HartKoate customization provides a unique advantage to customers.

Carmel Project Product Specifications



Series 82, 83, 87 & 88 Fiberglass Exhausters

- Available in sizes 12 to 40"
- Up to 12,000 CFM at 2.5" SP
- Fiberglass provides better corrosive solution versus coated aluminum fans
- 100% and 66% wheel widths
- One piece solid fiberglass wheel provides low noise and higher efficiency
- Available in direct drive or belt drive
- Fan cooled motor standard; explosion proof and mill & chem motors are available
- HartKoate and ASTM spark proof construction available
- Monel hardware available
- Long list of chemical resistance
- Accessories available to create unique packaged solution for wastewater applications



Series 40 Fiberglass Inline Centrifugal

- Available in sizes 12 to 60"
- Up to 85,000 CFM; up to 12" SP
- 100% and 66% wheel widths
- One piece solid fiberglass wheel provides low noise and higher efficiency
- Can be used in a horizontal or upblast configuration
- Motor out of airstream for corrosion protection and easy servicing
- Fan cooled motor standard; explosion proof and mill & chem motors are available
- HartKoate and ASTM spark proof construction available
- Accessories available to create custom solutions



**Series 37 Fiberglass
Roof Exhausters**

- Available in sizes 12 to 60"
- Up to 66,000 CFM; up to ½" SP
- Fiberglass fans provide better corrosive solution versus coated aluminum fans
- Airfoil blades on prop provides low noise and higher efficiency
- Motor out of airstream for servicing of motor and drives
- Standard fan cooled motor; explosion proof and mill & chem motors are available
- HartKoate and ASTM spark proof construction available
- Accessories available including FRP curb and dampers