

CASE

STUDY

Alliant Energy Corp

- **Corporate Headquarters
Madison, Wisconsin**

Mee Fog Humidifier Installation

- Mee Fog High Pressure
Humidification System For
Seven Air Handlers

Benefits:

- Reduced Energy Consumption
- Lower Maintenance Costs
- \$300,000 Savings Per Year
- ROI < 2 years

Alliant Energy Corporation provides regulated electric and natural gas service to approximately 1 million electric and 420,000 natural gas customers in the states of Iowa, Wisconsin and Minnesota. Located in the heart of the Midwest in Madison, Wisconsin, Alliant Energy has nearly 5,000 employees and annual operating revenues in excess of \$3.3 billion.

The utilities' head quarters building in Madison is conditioned by seven air handlers utilizing electric steam humidifiers for employee comfort and well being, and to reduce static electricity during the winter months. Because of their involvement in energy rebate programs in all of their service areas, the decision was made to upgrade the head quarters humidification systems to a more energy efficient technology. An active sponsor of energy reduction technologies, Alliant Energy would not have benefited from the incentive programs because the projected project payback was less than two years for the installation of the energy efficient Mee Fog humidification systems.

Gordon Kenggaard, facilities manager for the Madison HQ facility, contacted the Best Group to assist him in selecting the new humidification system. The Best Group works with steam and adiabatic humidification systems, and recommended Alliant investigate the Mee Fog high pressure systems. The Mee Fog systems utilize high pressure to atomize the water into billions of super fine droplets for quick absorption. The energy required to atomize the water is 1/100 of that required by electric steam humidifiers.

The building has seven air handlers, with a total of 228,000 cfm operating on air side economizer cycle. The units are served by



two high pressure Mee Fog pump systems that provide 1000 psi water to the nozzle headers via staging solenoids. Each pump system has a dedicated water treatment system to remove all of the dissolved solids from the water before it is introduced into the air stream. Capacity of each system is controlled by the building control system through staging solenoids. The BAS determines how many nozzles are needed to match the humidity load under all weather conditions, and energizes the correct sequence of high pressure valves.

The humidity is introduced into each air handler between the pre-heat coil and the cooling coil. Any moisture that is not absorbed in this section is collected on a droplet filter and drained.

The installed capacity in all seven air handlers is 2,832 #/hr. The electrical load for the Mee system is 4.5 kW. Annual energy savings, as compared to electric steam generating humidifiers, is in excess of \$300,000, with a further reduction of \$15,000 in annual maintenance costs.

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The annual energy savings represent a reduction of 4,659 tons of CO₂ going into the atmosphere. That's equivalent to over 9 million miles of automobile travel.