MeeFog™ Maintains Proper Humidity in Press Hall, Reel Room & Roll Storage Area

THE BENEFITS OF MEEFOG TECHNOLOGY
- Reduced Energy Consumption
- Faster Throughput
- Lower Maintenance Costs
- $75,000 Savings Per Year
- Easy Retrofit and Rapid Installation

CHALLENGE
The Journal Sentinel expansion creates need for energy efficient, reliable humidification system to replace old style gas-fired humidifiers.

SOLUTION
Installation of Mee Fog High Pressure Humidification System overhead in the Press Hall, Reel Room & Roll Storage Area. The Mee Fog system showed superior results compared to Gas-To-Steam humidifiers they replaced.

Milwaukee Journal Sentinel, Milwaukee, Wisconsin USA
The continued growth of the Milwaukee area prompted the Journal Sentinel to expand their printing and distribution capabilities in 2000.

The original design called for gas-fired humidifiers to be installed on all of the air handlers serving the press hall, roll prep, reel room and mail room.

The GTS (Gas-to-steam) humidifiers proved to be expensive to operate and difficult to maintain in an operational condition. Maintaining proper humidity control is critical for press operation and post-printing handling.
The MeeFog control shown above manages separate zones for press, reel, and paper storage areas.

**Milwaukee Journal Sentinel**

Johnson Controls (JCI) is the site manager for building maintenance and operations and they called on MeeFog to assist them in designing an in-space humidification system that would provide the humidity control they desired in an energy efficient manner.

**New System Design**

In-space humidification systems utilize 1000 psi water that is passed through specially designed nozzles that atomize the water into billions of super-fine water droplets which are then injected directly into the space for 100% absorption efficiency.
The building has distinct areas that require humidity control. The Press Hall, Reel Room, Roll Prep and Mail Room are all sensitive to moisture levels. The humidity load in each area is high and it is imperative that the system maintains the humidity set point. JCI wanted two high-pressure pumps for redundancy configured so the Johnson Controls Metasys system could switch them over automatically for run time balance and failure mode redundancy.

“Annual energy savings compared to the gas-to-steam humidifiers that were replaced is in excess of $75,000. This project qualified for a “Focus On Energy” grant from the State of Wisconsin in excess of $45,000.”

The Installation

The two MeeFog pumps are interconnected and isolated from each other with check valves. In the event of a failure of a pump, the redundant pump can be started to maintain the critical areas of the plant at the proper humidity level. Each area is controlled by the Metasys humidity sensors RO water is delivered to the MeeFog system from the press fountain water treatment system. RO systems remove the minerals from the water and reduce routine maintenance on the system. The Roll Prep room has a single control zone, The Press Room and Reel Room have four zones each. The Mail Room is a two zone-system.

Cost/Benefit Analysis

The total electrical load for this system is 3.75 kW with a total capacity of 2200 lbs/hr.

Annual energy savings compared to the gas to steam humidifiers that were replaced is in excess of $75,000. This project qualified for a “Focus On Energy” grant from the State of Wisconsin in excess of $45,000.
A typical fog system uses one horsepower for every 500 lbs of water, which is 3% of the energy usage of compressed air-type systems and about 1% of the energy usage of steam systems.

### ENERGY COST COMPARISON CHART (ANNUAL)

<table>
<thead>
<tr>
<th>System</th>
<th>Cost</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>MeeFog™ System</td>
<td>$706</td>
<td>1%</td>
</tr>
<tr>
<td>Ultrasonic</td>
<td>$8,467</td>
<td>6%</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>$13,054</td>
<td>9%</td>
</tr>
<tr>
<td>Steam to Steam</td>
<td>$113,263</td>
<td>74%</td>
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<tr>
<td>Gas to Steam</td>
<td>$74,966</td>
<td>49%</td>
</tr>
<tr>
<td>Electric Steam</td>
<td>$153,931</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Assumptions:** $0.10 per kWh, $1.20 per therm, 3500 hours operation, 1000 lbs. per hour moisture output.

### About Mee Industries Inc.

For over 45 years Mee Industries has led the world with innovative water fog technology. MeeFog systems are used to humidify and cool many industrial, commercial and agricultural processes and to create interesting and dynamic special effects. Today there are over ten thousand MeeFog systems in use around the world. The MeeFog team looks forward to helping you with your fogging project.

### The Mee Advantage: Experience, Innovation, Performance

In 1969, Thomas Mee Jr., a former Cornell University research scientist, founded Mee Industries. The company originally manufactured high-tech electro-optical, meteorological instrumentation, but by the early 1980’s, high-pressure water fogging had become the main focus of the company. Today, Mee Industries provides innovative, highly effective, economical fog solutions for many industrial applications including gas turbine inlet-air fogging, commercial and industrial building humidification and cooling, data center humidification, outdoor air conditioning, greenhouse climate control, wine barrel storage humidification, as well as dynamic special effects for the entertainment industry and theme parks.

### Industry Leaders — Focused on Fog Technology

Mee specializes in providing custom-engineered, turn-key high-pressure fog solutions. We are committed to researching, developing, marketing and supporting the most innovative and reliable fog systems available anywhere in the world.