



CURRENTS
WINTER 2012

Metropolitan Goes Back to School



Iowa Wesleyan College is a private, four-year liberal arts college located in Mount Pleasant, Iowa. Metropolitan Industries recently installed new packaged boiler systems in five campus buildings to bring the school a more cost efficient heating system.

In its distinctive role among the many institutions of learning in America, Iowa Wesleyan College adheres to the ideals of its founding vision of social justice and human welfare on the local and international level by seeking to decrease its carbon footprint. In an attempt to bring a cleaner, greener and a more cost efficient heating system to their school, Iowa Wesleyan, in conjunction with Energy Systems Group, decided to replace their existing, centralized hydronic heating system with several more efficient complete packaged boiler and primary piping pump systems from

Metropolitan Industries.

ESG designed a system so that each building's heating system would have equipment pre-assembled and manufactured for ease of installation. ESG decided Metropolitan Industries, the leading manufacturer of complete boiler and primary piping pump systems, was the right supplier for equipment development and construction. The campus upgrades also included additional geothermal heating/cooling facilities.

"After a few discussions about the design, we decided to provide

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- **Metropolitan Hosts Will County Government League Meeting**
- **How Metropolitan Uses Custom Fabrication to Meet Your Needs**

high-efficiency, pre-packaged hybrid boiler systems assembled on prefabricated skids with the associated primary piping and pumps,” said HVAC Sales Manager Matt Brickey. “This type of design would allow for ease of installation by the contractor and reduce installation time dramatically. We realized moving the prefabricated system through the tight hallways and doorways posed a challenge, so the system was designed so that it could be manufactured in a way that split the skid in three different spots allowing for easier moving and maneuvering around tight spaces.” The custom designed and engineered boiler systems were installed in five campus buildings: The McKibbin Dormitory, Student Union, Science Hall, Campus Library and the newly-renovated Chapel. In the McKibbin Dormitory and Student Union, hybrid boiler systems with heat exchangers were also packaged on the systems to satisfy the domestic hot water load.

High efficiency air separators manufactured by Spirotherm® were utilized to remove unwanted air that may have found its way into the system during the installation process. Spirovent® technology is designed to address all forms of air (entrapped, entrained and dissolved) that can be found in closed loop systems and remove nearly all of it. The coalescing medium creates a low velocity area inside the Spirovent® that allows air bubbles to rise and dirt to

sink. There are no strainers, filters or replacement parts that can potentially become clogged. The flow always remains constant, without a high-pressure drop.

The end result is increased distribution efficiency, component life and heat transfer capabilities, along with decreased oxygen-based corrosion and pump cavitation, and the elimination of air related noises within the entire piping system.

How can you benefit using two different boilers?

In regards to Iowa Wesleyan’s energy consumption concerns, the primary reason for utilizing a modulated conventional boiler AND a condensing boiler is simple—together they are more efficient, have a lower initial cost and last longer.

For Iowa Wesleyan, the implementation of the hybrid boiler system was the ideal solution for their new heating system. They were able to save some up front costs by purchasing a “standard” efficiency boiler, but were still able to benefit with the energy savings through the use of the high efficiency condensing boiler when conditions would allow.

Combustion air temperature also affects the net efficiency of the combustion process. Cold combustion air will absorb more energy released from burning the fuel than warmer combustion



Pictured is a packaged boiler system prior to installation. This system was installed at Iowa Wesleyan’s Library.

air; meaning colder combustion air reduces the efficiency of the appliance.

Lower return water temperatures and lower flue gas temperatures provide the best condensing operation. The condensing boilers recover the latent heat that is usually lost by harvesting the energy that is created when the water vapor in the flue gas is turned into a liquid.

When a customer's boiler system is more efficient, it will not only save the customer money each year, it will also decrease their carbon footprint. The efficiency of the boiler system in part depends on the temperature of the return water. When the return water temperature is 130 degrees Fahrenheit (54.4 degrees Celsius) and above, the control system will run the conventional boiler. At 129 degrees Fahrenheit (53.9 degrees Celsius) and below, the control system will run the condensing boiler. The savings are maximized in temperate climates where winters are cold and summers are warm.

When the system uses the condensing boiler, the amount of usable, sensible heat that is generated is significantly larger than that of a conventional boiler system—creating true system efficiency.

Why not just use condensing boilers?

It seems like the perfect boiler system would simply use condensing technology. But if return water temperatures are too high, the

condensing boiler will be only as efficient as a conventional type boiler. In a condensing boiler, when the temperature of the return water is too high and the air temperature is too cold, it will not allow a condensing boiler to operate in condensing mode. Initial capital costs can be reduced with a hybrid system by combining a

“Savings in total energy costs are expected to be more than \$400,000 per year.”

lower cost conventional boiler with a premium efficiency condensing boiler. Due to Iowa Wesleyan's upgrades, the General Board of Higher Education and Ministry estimates that “the energy

efficiency improvements are expected to reduce Iowa Wesleyan College's carbon emissions by more than 1,390,000 pounds of carbon dioxide per year. Savings in total energy costs are expected to be more than \$400,000 per year.”

Every customer's needs are unique and Metropolitan can tailor the solutions to meet your needs.

“What's nice about these systems is that they're completely customized to the client's needs,” said Brickey. “Metropolitan Industries can configure the piping, boilers and system components in any manner to ease the installation process for a new or retrofit application.” In the case of Iowa Wesleyan College, the savings are significant.

For more information regarding HVAC products, please contact Matt Brickey at 815-886-9200, ext. 266.



Pictured are the new hybrid boiler system package and the primary pump system recently installed at Iowa Wesleyan's Science Hall.

Track Your System With MetroMail™

Metropolitan Industries recently completed a stand-alone version of MetroMail™, the company's very own "alarm dialing" system.

When implemented to monitor any pump or electrical system, MetroMail™ has the capability to send e-mail alerts to notify users of equipment status or problems and can assist users in avoiding potential disaster when troubles occur.

"You can configure MetroMail™ so it will send an e-mail at an interval completely configurable by the user out through the device's Ethernet jack and through the Internet," said Metropolitan Software Engineer Joe Burza. "So in other words, if you have your laptop on you or you're carrying a phone with email capabilities, you can receive a message that a problem with your pump has occurred instead of waiting for the water to back up and start flooding."

MetroMail™ features eight optically isolated dry inputs accepting 10 to 30 volts of AC or DC power. The unit's status light tells users whether the unit has power, is properly configured and is sending emails, whereas network lights indicate LAN activity and connectivity. Its on-board web server allows for the configuration of messages, addresses and other settings via any web browser.

A MetroMail™ unit was recently installed at the Lake County Jail in Crown Point, Indiana. Metropolitan was contacted by Keough Mechanical for the project, who wished to upgrade the existing lift station due to clogged pumps reported by prison officials.

The lift station in need of attention was responsible for all of the sanitary waste from the facility. Detained members knew of the lift station's function and would routinely disrupt the operation of the pump system by flushing items that would typically be disposed of in a garbage can.

After Metropolitan's Keith Girup made a field visit with the owner and contractor to discuss the problem with the operators and evaluate the obstacles associated with the retrofit upgrade, it was determined that an impeller change would be the most suitable solution to significantly reduce and potentially eliminate the clogging issues.

While Metropolitan was helping solve the mechanical issues the facility faced, new controls with e-mail notification were also proposed.

In order to provide this notification, Metropolitan included MetroMail™, which contacts personnel by email in the event of a lift station alarm condition. An operator interface with

Metropolitan Hosts Will County Governmental League

On October 13, Metropolitan Industries was proud to host the 2011 Fall Will County Governmental League Meeting. In attendance were over 60 people, including politicians and various firms that conduct business in Will County.

The event kicked off at 4:30 p.m. with a reception followed by the league meeting at 5:30 p.m. and dinner at 6:30 p.m. Many who attended stayed to tour Metropolitan and see some of the products and services we provide firsthand.

Metropolitan employees were hosts of the event, volunteering to assist attendees with anything they needed throughout the event.

Metropolitan would like to thank the Will County Governmental League for choosing our facility for their recent meeting.

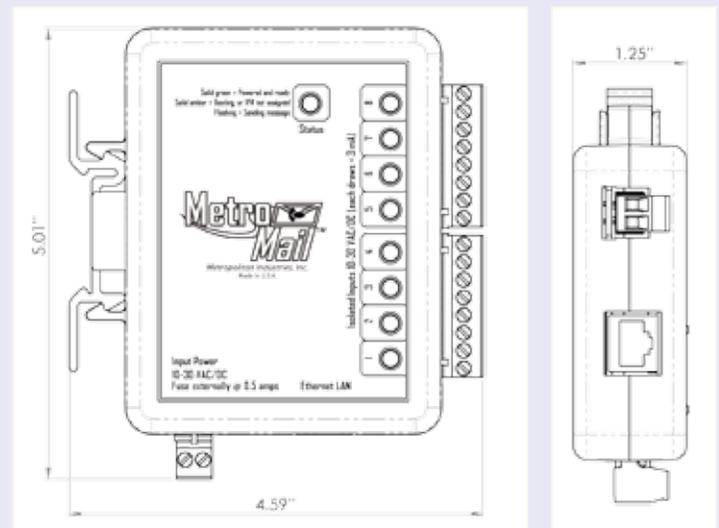




MetroMail™ At A Glance

MetroMail™ messaging system is a stand-alone device that can monitor and report statuses of any electrical device or system by sending email messages through an Internet connection.

- 8 electrically separated, optically isolated, dry digital inputs, 10 to 30V AC or DC (each drawing less than 3 mA when supplied with 10V)
- Input indicator lights show state of each input
- Status light tells whether unit has power, is properly configured, and is sending out emails
- Network lights indicate LAN activity and connectivity
- On-board web server allows configuration of messages, addresses and other settings via any web browser.
- Optional password protection of configuration web pages
- DIN rail or screw hole mountable
- Outer dimensions of 5" x 4.5" x 1.25"
- Industrial temperature rated, from -40° F to +185° F
- Made in the United States of America



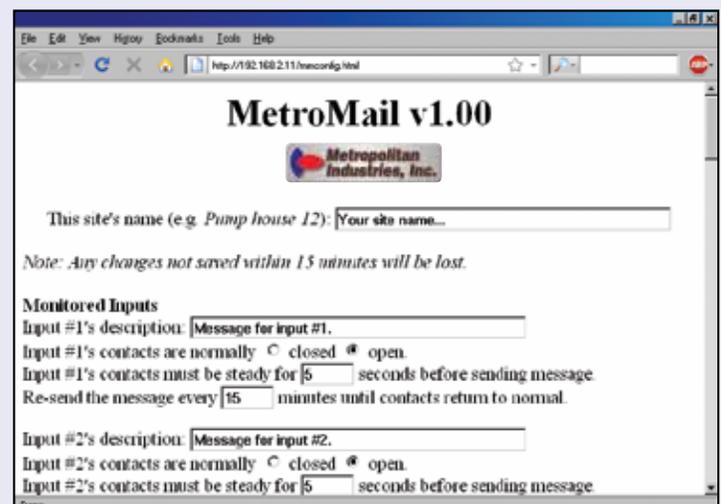
Internet connectivity via a cellular modem is also included. These control features allow for quick response during an alarm condition with 24-hour supervisory ability.

One ideal consumer for a product like MetroMail™ would likely be a small town looking to save money on monitoring equipment.

MetroMail™ offers customers a cost-effective option to purchase basic monitoring equipment when a more expensive option is not practical.

MetroMail's™ convenient size also gives customers the flexibility to monitor equipment when space is a concern.

For more information regarding MetroMail™, please contact Keith Girup at 815-886-9200, ext. 264.



Special Fabrication Keeping

At Metropolitan Industries, we pride ourselves on service that exceeds customer specifications. Over the years, we have modernized the fabrication process to complete projects that include even the most difficult of challenges.

Metropolitan's Custom Displays

Metropolitan has designed new and innovative methods for customers to showcase their products. Recently, a major pump manufacturer contacted Metropolitan to develop a display that would effectively showcase their products in a professional manner where viewers could clearly see how their system functions. Metropolitan designed a display that successfully demonstrated how the system works, complete with a pressure gauge and flow meter in which viewers could see the pump work firsthand. To ensure the display arrived to its destination exactly the way it was shipped, Metropolitan designed a custom crate to make certain the product would not incur any damages during delivery.

Ford Transit Vans have also served as a valuable mobile showcase for displaying several products. Metropolitan can incorporate systems into a Ford Transit Van in what can be described as a "trade show on wheels."

"The primary advantage for utilizing these types of unique exhibits is that customers get a look into your system in an in-depth and professional manner," said Metropolitan's Bob Wedell. "Other companies may just build displays, but because we're a pump system manufacturer, we're able to design exhibits in a way that best demonstrate the true functionality of the system."

For more information contact Bob Wedell at 815-886-9200, ext. 262.

Pictured below are three specially fabricated spools that incorporate special "fusion-bonded" coatings.



Metropolitan has designed acrylic displays and customized Ford Transit Vans for customers to showcase their product in the most effective and unique manner.

Metropolitan A Step Ahead

Village of Franklin Park, IL.

The Village of Franklin Park recently made the decision to upgrade an existing pump station and contractor Dahme Mechanical, Inc. called upon Metropolitan to assist in addressing their needs. This facility was more than 40 years old and a main water pump station for the village. The project required specialized fabrication of certain parts to aid in installation of the new booster pumps.

Following an initial field visit, Metropolitan's Ken Turnquist came to the conclusion that specially fabricated spools would be required for the project to function upon completion. To accommodate the village's needs, Metropolitan's Bob Svoboda designed several custom-dimensioned offset spools to ensure the new pumps would function in the existing configuration.

"We needed to design special 12 in. by 8 in. spools, so I essentially started with a 12 in. diameter pipe and constructed it on a segment by segment basis" said Svoboda. "By the time we had finished, the other end of the spool matched the 8 in. connection and bolted in perfectly."

In total, eight specially fabricated spools were required to complete the project.

Turnquist says the need to specially fabricate a system is an opportunity Metropolitan Industries faces on a routine basis. Lift station adapter flanges for rail systems are another one of many special fabrications Metropolitan creates regularly. "We're often faced with projects where existing wetwells have all of the piping and suction elbows mounted," said Turnquist. "In many instances the customer elects to utilize one of our pumps, but a stock flange cannot fit in the existing rail system. This is where we have to specially fabricate a new flange that will allow the new pump to seal on the existing base elbows." For more information, please contact Ken Turnquist at 815-886-9200, ext. 261.



Metropolitan specially fabricated spools that also incorporated special "fusion-bonded" coatings to simplify with the installation of new pumps in this existing configuration.

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