Metropolitan Industries, Inc.
37 Forestwood Drive
Romeoville, IL 60446

THE PUMPING WORLD'S ONE STOP SHOP!™

Metropolitan Industries, Inc.

CURRENTS

SPRING 2009

Solar Technology Heats Green Market

Write In 100

A solar system can provide up to 80 percent of the heating needs required for a home or business at zero cost to the consumer after equipment and installation costs.

With energy prices on the rise and the future of supplies uncertain, Americans are now considering "green" solutions to reduce their costs for such things as heating their domestic water and homes.

The use of solar technology is an efficient solution to combat the high costs of heating domestic hot water for everyday use and/or radiant floor heating. According to the U.S. Department of Energy (DOE), heating your home accounts for about 56 percent of your utility bill making it the largest expense for most homes. Water heating is the third largest energy expense and can account for about 14-25 percent of the utility bill.

A recent addition to the Metropolitan Industries product line are solar powered systems manufactured by Viessmann of Germany for domestic hot water, radiant floor heating and air conditioning systems for residential and commercial applications.

The advantages of using solar power for domestic hot water, radiant flooring and air conditioning are significant given the cost of energy, its continued rise and its limited supply. The DOE says a solar system can provide up to 80 percent of the heating needs required for a home or business at zero cost to the consumer after initial equipment and installation costs.

Continued on next page

Plus...

...Metropolitan acquires 98% efficient water heater line
...Efficient booster system saves green
...Green Technology Seminars this summer

Energy and Water Independent Facility Attracting Large Crowds

If you haven't heard, Metropolitan Industries, Inc. has constructed an 800 sq. ft. working green technology display onsite at their Romeoville headquarters demonstrating advances in green energy and water technology.

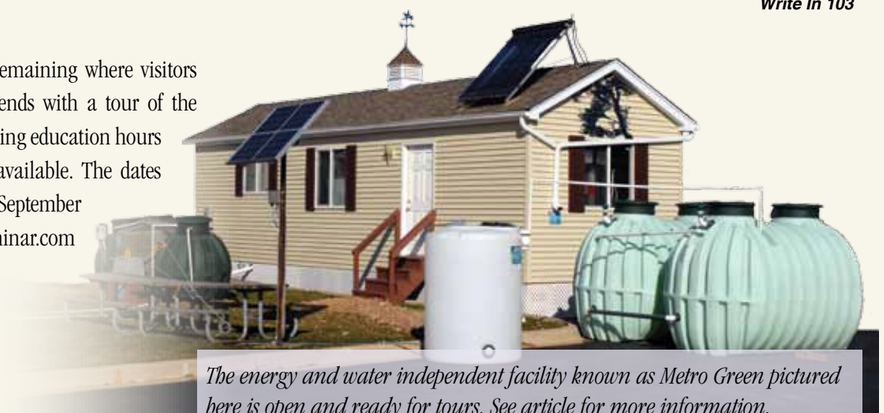
Visitors can visit and witness working displays for the first time under one roof such as advances in solar technology, rainwater harvesting, grey water recycling and much more.

This summer, Metropolitan has four dates remaining where visitors can attend a green technology seminar that ends with a tour of the facility also known as Metro Green. Five continuing education hours and five professional development hours are available. The dates remaining are June 11, July 23, August 13 and September 10. Register online at www.greentechnologyseminar.com on the internet.

If you cannot attend those dates, you can just schedule a tour online of Metro Green by visiting www.MetroGreen.us. There you can register and pick from a block of days available to meet your busy schedule.

Any questions about classes or tours will be answered by Joseph Sanchez at 815-886-9200 or by email at jsanchez@metropolitanind.com.

Write In 103



The energy and water independent facility known as Metro Green pictured here is open and ready for tours. See article for more information.

Solar Technology Heats Green Market

Continued from front

Given solar energy is free, a system will pay back the purchaser in three to five years in energy savings and will continue to pay dividends in energy savings and consumption for years to come.

Solar technology can apply to both residential and commercial applications. Below are two recent installations demonstrating such applications. In both cases, Metropolitan Industries, Inc. assisted in the design while supplying all equipment required while AA Services of Northbrook, Ill., completed installation.

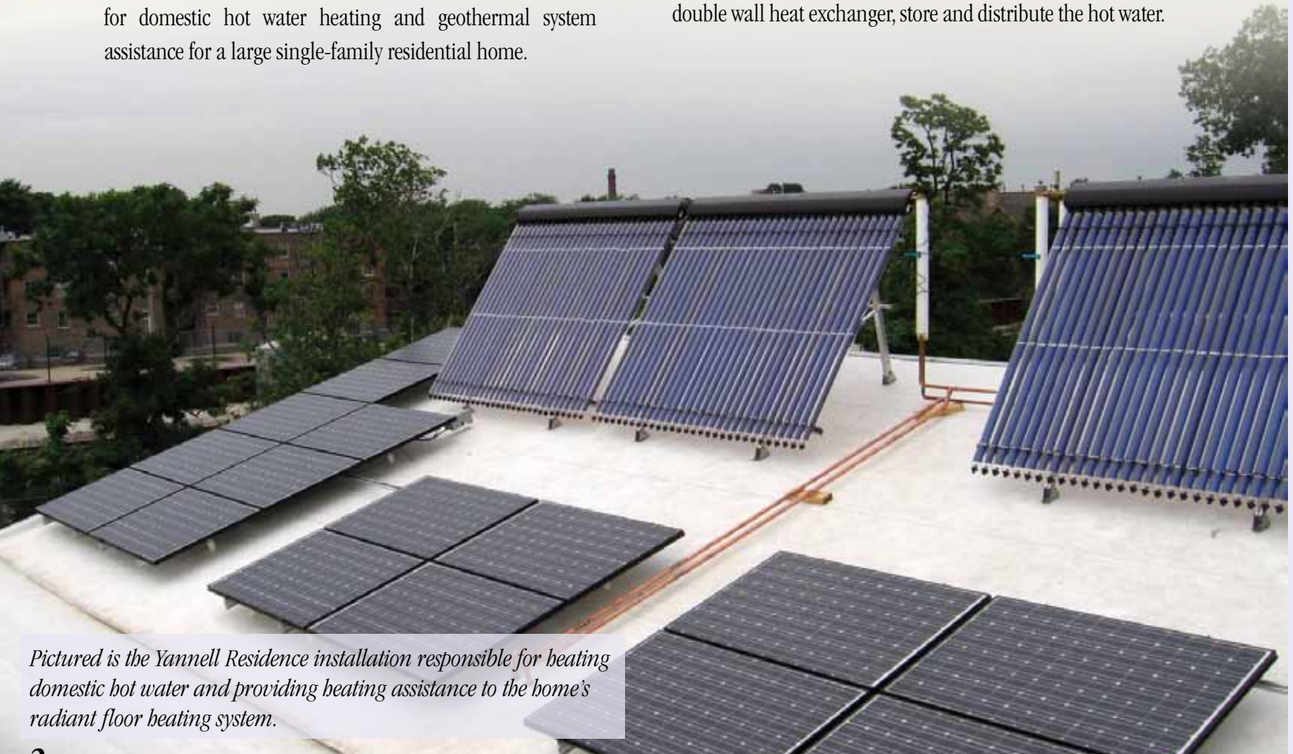
> Solar Technology can apply to both residential and commercial applications...

Residential Case Study- Yannell Residence

This particular case study is a good example of a residential application. The goal was to provide a solar hydronic system for domestic hot water heating and geothermal system assistance for a large single-family residential home.

The Solar System's primary operation procedure is to heat the domestic hot water in (2) 119 gallon indirect tanks. The system's second responsibility is to provide heating assistance to the building's radiant floor heating system through a second heat exchanger installed in the geothermal system's ground source loop. Whenever the solar system has ample capacity beyond domestic hot water generation, the excess heat input is directed to the geothermal system's ground source loop. The excess heat input is transferred into the heat pump loop and boosts the incoming earth water temperature.

Equipment supplied by Metropolitan included (4) Viessmann Vitosol 300 Vacuum solar collectors and racks with control panel to electronically monitor and control the entire system. (Two) 119 gallon indirect hot water tanks, each with a double wall heat exchanger, store and distribute the hot water.



Pictured is the Yannell Residence installation responsible for heating domestic hot water and providing heating assistance to the home's radiant floor heating system.

the middle of the night. A typical antiquated system incorporates pressure-reducing valves (PRVs) on the discharge of each pump to maintain a constant system pressure. At any flow less than peak flow, the pressure reducing valves will throttle flow and waste energy. This is similar to pressing the gas peddle in your car to the floor and controlling speed with the brake. This was a popular solution for this era, however given the country's current green culture, this type of solution is the "SUV" of the industry due to the amount of energy wasted.

The system also had wild pressure swings up to 20% or more and required extensive maintenance according to Jerry Daly, Assistant Chief Engineer at 225 N. Michigan.

"The system constantly needed maintenance attention in order to keep it running and the pressure swings made it unpredictable," said Daly.

The Chief Engineer, Walter Bisping, added that due to the pressure swings staff would constantly battle alarm situations such as low suction pressure, high discharge pressure and low discharge pressure.

According to Operations Manager Mark Szewczyk, surges in pressure caused problems on the top floors during high demand periods and did not adequately supply pressure to supply fixtures and toilets according to building loads.

Green Design

Working closely with Plumbing Contractor Bob DeGuiseppe of Chicago-based Great Lakes Plumbing & Heating, Metropolitan Industries' Chicago Sales Manger, Mike Ponx, suggested installing a variable-speed system that would reduce energy costs by a 1/3 due to the system's ability to match demand precisely by using only the minimal amount of energy necessary.

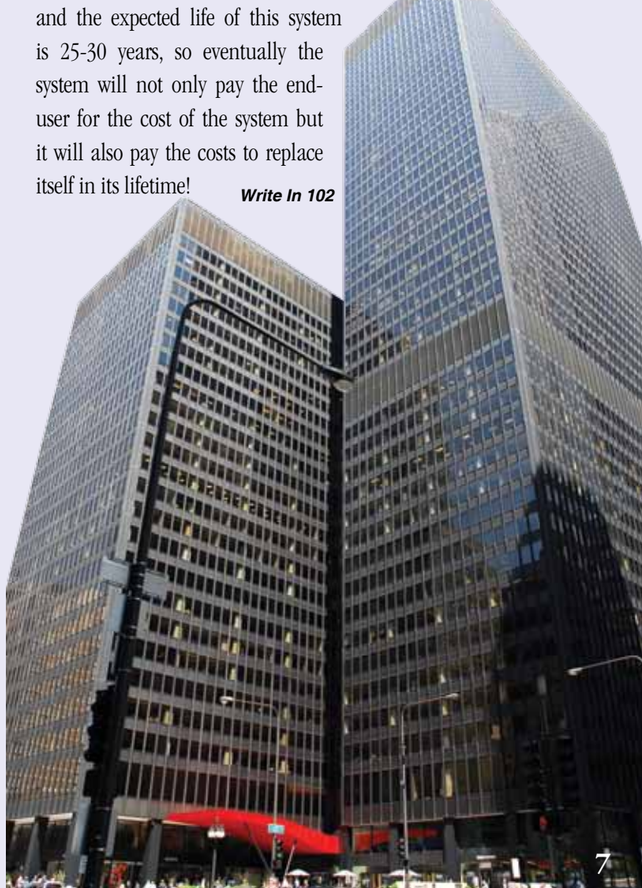
Ponx was able to redesign the new system based on a calculated flow of the existing system and match the building pressure requirements with minimum pressure fluctuations regardless of flow.

The new variable-speed, triplex domestic water booster system consisted of vertical multi-staged pumps each rated 400 gallons per minute (GPM) at 400' of total dynamic head. System capacity is 800 GPM (one pump is a spare) with total system pressure of 195 PSI and a minimum suction pressure of 20 PSI. The new booster system uses 1/3 less power than the constant speed system, saving the building owners money on energy costs.

Besides the reduction in kilowatt usage and the saving of approximately 33% in energy consumption a month, the pressures are stable and the control system is able to hold accurate pressure within 1-2 PSI versus 20-40 pound swings using PRVs on the constant speed system. The other major benefit using VFD control is eliminating PRVs, which eliminates maintenance and excessive costs associated with rebuilding the PRVs. The life of the motor and bearings are extended as well extending the life of the system overall.

The new system features high efficiency pumps and motors, variable speed drives and a Metropolitan Industries' Programmable Logic Controller to operate pumps at peak hydraulic efficiency.

Within five to seven years, the system will pay for itself entirely on energy-savings and the expected life of this system is 25-30 years, so eventually the system will not only pay the end-user for the cost of the system but it will also pay the costs to replace itself in its lifetime!



Booster System Reduces Energy, Saves Green

Write In 102

As energy costs continue to rise with no end in sight, building owners are turning their attention to strategies designed to reduce energy consumption. The commercial high-rise buildings that line the horizon of Chicago's business district are a good example of this strategy. A typical high rise building in Chicago can be occupied by many energy-demanding tenants such as restaurants, hotels, residential condominiums, convenience stores and more. As owners look to reduce costs, many are turning their attention to the domestic water supply systems that pump water throughout the building.

Many domestic water supply systems in Chicago's commercial buildings are as old as the buildings themselves. These systems, responsible for pumping the liquid gold that keep the buildings inhabitable and functional, have out-lived their intended time of service, not to mention their original specifications. Most of these systems were state-of-the-art during their installations decades ago but the buildings have evolved during those years, with increasing water demands due to expansion and upgrades within the building. Unfortunately, these outdated systems are pumping beyond their original specifications. This results in inefficient operation, driving up both maintenance and operating costs while putting the entire building at risk for a system shutdown.

When the original domestic water supply system at 225 N. Michigan in Chicago, began to show its age, the building owners had a decision to make; continue maintaining the building's original supply system or invest in a green, energy-efficient system that will reduce energy demand and pay for itself entirely on energy savings in five to seven years.

ABOVE: The new vertical multi staged pumps capable of pumping up to 400 gallons per minute at 400' of total dynamic head. LEFT: The new system uses a 1/3 less power than the original constant speed system thanks to the variable speed control panel pictured here.

Built in 1982, 225 N. Michigan Building's timeless, highly visible Miesian design conveys an image of modern architecture located on the world-renowned Michigan strip. The building has 25 floors of office space totaling almost 1 million square feet and a two-story retail concourse with gateway connection and direct access to Illinois Center shopping, Hyatt Regency, Fairmont & Swiss Grand Hotels nearby. The building offers great views of Lake Michigan, Millennium Park and the Chicago River with a three-level, heated underground parking garage providing access.

The original domestic water supply system consisted of three 60 HP pumps and one 30 HP pump running at a constant speed, which made it a large consumer of energy and an inefficient supplier of water to the building.

A constant speed system will run the pumps at a speed intended for the highest demands, even during low-flow periods such as during

According to Wholesale Manager of Viessmann products Mark Brickey, the cost for this system was $16,000 but in three to five years, the system will pay back the initial costs to purchase and install the equipment. There are also Federal Tax credits available that will aid in reducing initial startup costs.

Commercial Case Study - Clara's Village Interfaith Housing Project

Clara's Village is a multi-tenant residence building located in Chicago. The scope of the project included Metropolitan designing a solar domestic hot water heating system for the building with the ability to provide annual average heat input for up to 1500 gallons per day of hot water totaling 600,000 BTU a day. The solar system is also capable of providing heating assistance to the building's radiant floor heating system, reducing the building's dependence on natural gas.

This particular job was extensive in terms of equipment supplied by Metropolitan. In all, 37 Viessmann flat panel solar collectors with control panel were supplied and installed. The Viessmann flat panel provides for a higher efficiency than most manufacturers and due to this, less square footage is needed during installation to meet the heat transfer requirements.

The 37 solar panels heat water in (2) 525 Gallon DHW Tanks (42" x 96" + 3" insulation) with heat exchanger and are double walled to meet Illinois state plumbing code. The 42" dia. x 96" tall tanks have a capacity of 525 gallons and are G8 Cement lined with stainless steel openings. The tanks are stamped for 100 PSIG working pressure under Section VIII of A.S.M.E. Code. The removable heating element is double-walled copper/copper tubing.

The solar system is designed to heat 150 GPH of water at a capacity of 80°F differential temperature when supplied with 7 GPM of 160°F solar water to the tube bundle.

According to Brickey, the cost for this system was $35,000 but in three to five years, the system will pay back the initial costs to purchase and install the equipment. There are also Federal Tax Credits available that will aid in reducing initial startup costs.

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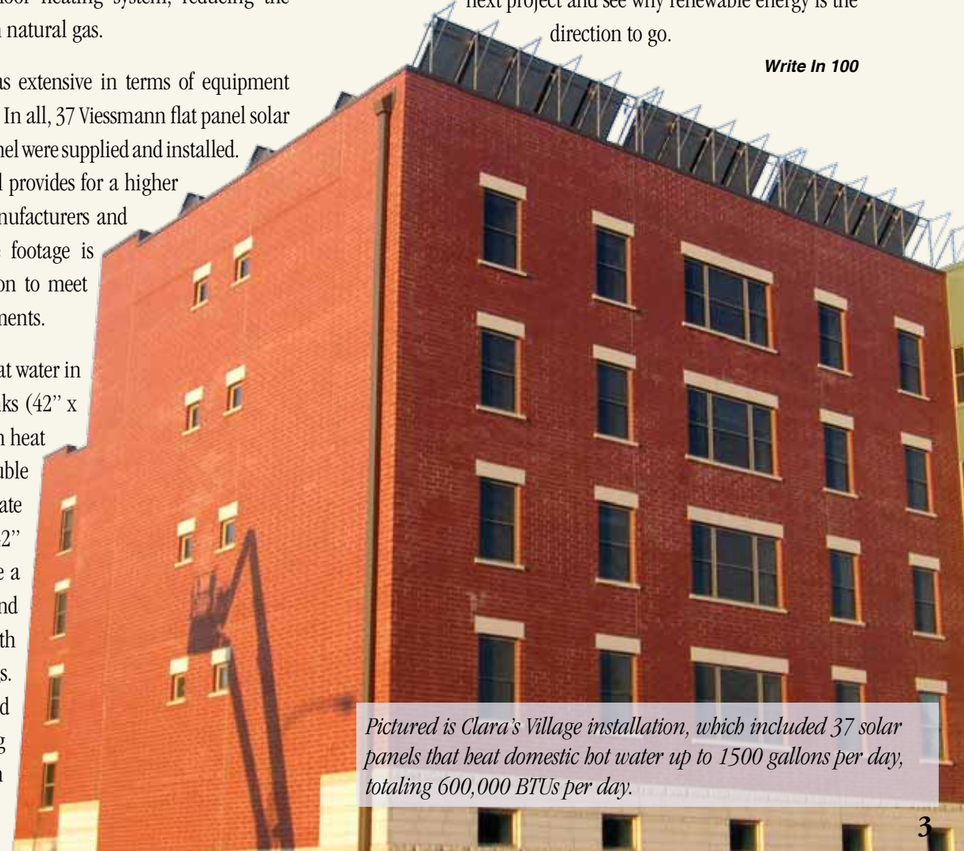
Conclusion

Whether it is a small residential or a large commercial application, solar technology is finding its place within new construction and retrofit projects. Take a close look at what solar technology has to offer during your next project and see why renewable energy is the direction to go.

Write In 100



Pictured is Clara's Village installation, which included 37 solar panels that heat domestic hot water up to 1500 gallons per day, totaling 600,000 BTUs per day.

Hot Water News!

Write In 101

98% Efficient Hot Water Heater Now Available!

Metropolitan Industries, Inc. is pleased to announce the addition of Navien Tankless Water Heaters to their residential product catalog adding the most efficient water heaters on the market at 98%.

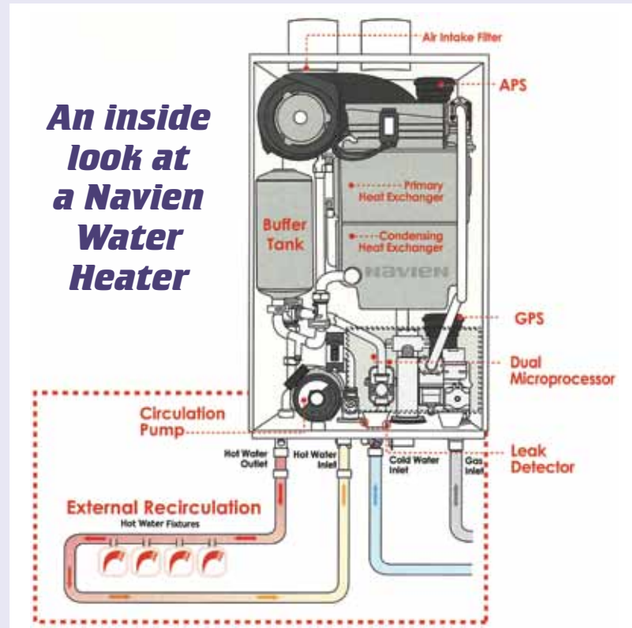
Navien manufactures the most efficient tankless water heaters on the market and has tapped Metropolitan Industries to represent their product in Illinois.

Navien Condensing Water Heaters provide an unlimited amount of hot water at a steady temperature whenever needed, for as long as needed and holds the industry's highest efficiency rating at 98%; meaning end-users can cash in on low annual operating costs.

T-CREATOR KD Navien

The use of dual stainless-steel heat exchangers provides 20 times more resistance to erosion and condensation damage than their copper counterparts used in other brands. This allows efficient operation using mid-temperature water minimizing possible damage caused by lime build-up.

A unique feature of the water heaters is a built-in circulation pump with a mini buffer tank that delivers hot water to fixtures quickly resulting in water conservation, the reduction of hot/cold stacking and the elimination of heat exchanger freezing. Navien is the only manufacturer that includes a hot water circulator and storage tank built-in. This eliminates the need to add one later, which reduces your warranty with most other manufacturers because of the wear and tear caused to the heat exchanger. With Navien, the circulation pump and buffer tank is included and comes with a 15-year residential and a 10-year commercial warranty on the heat exchanger.



Due to the high efficiency of Navien's condensing tankless water heater, lower exhaust temperatures are produced allowing for the use of PVC or other plastic venting materials. This offers significant savings in costs and makes installation a breeze. For large volumes of hot water, up to 98 systems can be linked together as one complete system to satisfy demand.

Metropolitan stocks a large supply of Navien water heaters in their warehouse for quick shipment. For more information about Navien products and eligibility for Federal Tax Credits contact Mark Brickey at 815-886-9200.

Write In 101