HSC Hartford Steam
Building Comfort You Can Rely On

Issue 3, 2010

SPECIAL METERING FOCUS

in the Loop

Accurate Metering a Top Priority

At The Hartford Steam Company, we are dedicated to installing and maintaining our steam, hot water and chilled water meters to provide precise, dependable readings.

Hartford Steam's district energy services are metered at each customer location. We provide high-quality meter(s) and sensors to the customer without charge upon commencement of service. Most locations need just one steam or hot water meter and one chilled water meter. Some larger buildings are unique and require additional meters.

The type of meter provided varies based on the application and location of each meter at the customer's site.

Typical customer metering system installation.

Steam Meters. The company primarily uses orifice plate meters to measure steam use. The orifice plate meter is a differential pressure flow meter. The steam passes through a restriction, and the pressure and temperature differential are measured across that restriction.

Vortex-shedding and condensate meters are used in a few Hartford Steam customer buildings. Vortex-shedding meters determine steam velocity from the frequency at which vortices are generated by an obstruction in the flow. The condensate meter collects and measures condensate volume and/or flow.

Chilled Water Meters. The company's chilled water meters are primarily ultrasonic meters with high-accuracy transducers. The meters log inlet and outlet chilled water temperatures and flow to determine the amount of energy used.

In addition, magnetic (mag) flow meters are used at several customer facilities. A mag flow meter is a volumetric flow meter that does not have any moving parts.

Sensors. The most common type of sensor is a resistance temperature detector (RTD), which achieves accurate repeatable temperature measurement. Hartford Steam uses a high-quality RTD to obtain supply- and return-temperature readings. The RTD is calibrated based on National Institute of Standards and Technology (NIST) standards. The differential pressure transmitter is also calibrated to NIST standards.

Meter Readings and Data Review

Data from a building's steam and chilled water flow meters and temperature sensors are fed into a metering panel – essentially an energy calculator – at each customer's building. The metering panel has a programmable logic controller (PLC) that is tailor-made for Hartford Steam, which uses the information from the flow and temperature sensors to calculate a building's energy use. Our metering technician reads both the steam and chilled water panel displays each week and at the end of each month.

The weekly readings are checked for anomalies, such as high or low readings that would indicate a potential problem or change in the building's energy use. If any anomalies are detected, the metering technician revisits the building to test the meter's operation and makes repairs as needed.

At month-end, all customers' monthly steam, hot water and chilled water readings are reviewed and compared to the prior year's readings. The heating and cooling degree-day data and the precise number of days in the billing cycle give insight on possible consumption trends for the current billing period.

Maintenance and Calibration

To ensure meters and transmitters are operating at optimal design specifications, Hartford Steam has an ongoing metering maintenance program that includes calibration of each flow meter, temperature sensor and metering panel at least once a year.

We contract with an third party to assist with meter startup and commissioning and annual meter calibration. Calibrations are performed at each customer's facility. Hartford Steam and the contractor verify each flow meter's accuracy with a standard traceable to the NIST. Adjustments are made as necessary and

then certified to be NIST traceable. Customers are notified when calibrations are scheduled for their facility and are welcome to witness the calibration process.

Knowledge Is Power

Hartford Steam encourages customers with energy management systems (EMS) to tap into a valuable information resource: our PLC metering panel. We will work with these customers to provide them with four PLC data ports so they can monitor their own steam and chilled water use. Some customers are already connected and are taking advantage of this opportunity to learn more about their buildings' energy consumption patterns. With that knowledge comes the power to adjust or reduce energy use.

Reading Downtown

Bob Lanza installs, maintains, repairs and reads Hartford Steam's customer meters.

Bob Lanza knows downtown Hartford well. In fact he probably knows it better than most, as he visits 44 downtown buildings each week to read Hartford Steam's steam, condensate and chilled water meters.

Bob started with Hartford Steam in 1980 as an electrician and instrument technician. Although much of his work was initially in the Main Plant, Bob was selected to perform the weekly and monthly customer meter readings, which sent him out into the community. His training gave him insight on meter operation and soon he was also conducting meter installation, maintenance and repair.

Now with the title of plant technician, 95 percent of Bob's work is with customer meters. The balance of the time he maintains and repairs Hartford Steam's own plant meters that measure steam and chilled water flow plus river water flow at the pumphouse.

Bob knew Hartford well even before he joined Hartford Steam. He worked as an electrician in the Department of Public Works for the City of Hartford, so he was familiar with all of the municipal buildings. Prior to his work for the City, Bob worked for IBEW Local Union 35 on new construction jobs in the area.

Bob is a master electrician and also holds an associate's degree in business administration.

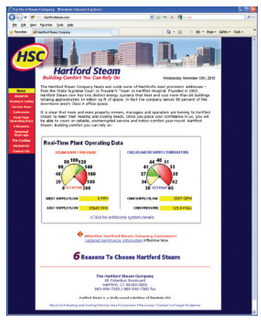
"I like the variety I have in my work," says Bob. "I handle the technical side of the meters, but also keep all meter records for each customer. And I enjoy the guys I've gotten to know at our customers' buildings. They're down-to-earth guys, and it's always good to see them and catch up on what's going on at their buildings."

Although many of us dread the coming winter months, Bob looks forward to them. He's an avid downhill skier who intends to give cross-country skiing a try this year. He also bowls and enjoys working outside around his home.

Thanks, Bob, for 30 years of service at The Hartford Steam Company.

MORE THAN 30 ATTEND HARTFORD STEAM SEMINAR.
More than 30 people from customer buildings attended Hartford Steam's "District Heating and Cooling Savings and Solutions," a five-hour seminar held on Oct. 29 at F.W. Webb Training Center. Guest speakers covered energy conservation for steam, chilled water and condensate, controls for building automation, and pumps 101 and solutions. The free seminar was an opportunity for customers to learn how to further optimize their use of steam and chilled water, ask questions about Hartford Steam's service and exchange best practices with other attendees. Held annually, the seminar topics and speakers change each year to bring customers the latest operational insight. We thank all who attended and hope to see you again at next year's session.

Bookmark Our Site!



Hartford Steam's home page now features real-time steam supply pressure and chilled water supply temperature information. There's even a link to a page that displays specific steam pressures and chilled water supply and return temperatures at different downtown locations. These features were recently added to the Web site to give customers the information they need to optimize their use of Hartford Steam's steam and chilled water. Check out our Web site today and bookmark it for daily reference. **www.hartfordsteam.com**

HSC Hartford Steam
Building Comfort You Can Rely On

www.hartfordsteam.com

60 Columbus Boulevard
Hartford, CT 06103-2805

In the Loop is a publication of
The Hartford Steam Company

Emergency? Call (860) 725-7005.
For information, call (860) 548-7348.

Printed on recycled paper that includes 100% post-consumer fiber.

HSC Hartford Steam
Building Comfort You Can Rely On

Issue 3, 2010

SPECIAL METERING FOCUS

in the Loop

Accurate Metering a Top Priority

At The Hartford Steam Company, we are dedicated to installing and maintaining our steam, hot water and chilled water meters to provide precise, dependable readings.

Hartford Steam's district energy services are metered at each customer location. We provide high-quality meter(s) and sensors to the customer without charge upon commencement of service. Most locations need just one steam or hot water meter and one chilled water meter. Some larger buildings are unique and require additional meters.

The type of meter provided varies based on the application and location of each meter at the customer's site.

Typical customer metering system installation.

Steam Meters. The company primarily uses orifice plate meters to measure steam use. The orifice plate meter is a differential pressure flow meter. The steam passes through a restriction, and the pressure and temperature differential are measured across that restriction.

Vortex-shedding and condensate meters are used in a few Hartford Steam customer buildings. Vortex-shedding meters determine steam velocity from the frequency at which vortices are generated by an obstruction in the flow. The condensate meter collects and measures condensate volume and/or flow.

Chilled Water Meters. The company's chilled water meters are primarily ultrasonic meters with high-accuracy transducers. The meters log inlet and outlet chilled water temperatures and flow to determine the amount of energy used.

In addition, magnetic (mag) flow meters are used at several customer facilities. A mag flow meter is a volumetric flow meter that does not have any moving parts.

Sensors. The most common type of sensor is a resistance temperature detector (RTD), which achieves accurate repeatable temperature measurement. Hartford Steam uses a high-quality RTD to obtain supply- and return-temperature readings. The RTD is calibrated based on National Institute of Standards and Technology (NIST) standards. The differential pressure transmitter is also calibrated to NIST standards.

Meter Readings and Data Review

Data from a building's steam and chilled water flow meters and temperature sensors are fed into a metering panel – essentially an energy calculator – at each customer's building. The metering panel has a programmable logic controller (PLC) that is tailor-made for Hartford Steam, which uses the information from the flow and temperature sensors to calculate a building's energy use. Our metering technician reads both the steam and chilled water panel displays each week and at the end of each month.

The weekly readings are checked for anomalies, such as high or low readings that would indicate a potential problem or change in the building's energy use. If any anomalies are detected, the metering technician revisits the building to test the meter's operation and makes repairs as needed.

At month-end, all customers' monthly steam, hot water and chilled water readings are reviewed and compared to the prior year's readings. The heating and cooling degree-day data and the precise number of days in the billing cycle give insight on possible consumption trends for the current billing period.

Maintenance and Calibration

To ensure meters and transmitters are operating at optimal design specifications, Hartford Steam has an ongoing metering maintenance program that includes calibration of each flow meter, temperature sensor and metering panel at least once a year.

We contract with an third party to assist with meter startup and commissioning and annual meter calibration. Calibrations are performed at each customer's facility. Hartford Steam and the contractor verify each flow meter's accuracy with a standard traceable to the NIST. Adjustments are made as necessary and

then certified to be NIST traceable. Customers are notified when calibrations are scheduled for their facility and are welcome to witness the calibration process.

Knowledge Is Power

Hartford Steam encourages customers with energy management systems (EMS) to tap into a valuable information resource: our PLC metering panel. We will work with these customers to provide them with four PLC data ports so they can monitor their own steam and chilled water use. Some customers are already connected and are taking advantage of this opportunity to learn more about their buildings' energy consumption patterns. With that knowledge comes the power to adjust or reduce energy use.

Reading Downtown

Bob Lanza installs, maintains, repairs and reads Hartford Steam's customer meters.

Bob Lanza knows downtown Hartford well. In fact he probably knows it better than most, as he visits 44 downtown buildings each week to read Hartford Steam's steam, condensate and chilled water meters.

Bob started with Hartford Steam in 1980 as an electrician and instrument technician. Although much of his work was initially in the Main Plant, Bob was selected to perform the weekly and monthly customer meter readings, which sent him out into the community. His training gave him insight on meter operation and soon he was also conducting meter installation, maintenance and repair.

Now with the title of plant technician, 95 percent of Bob's work is with customer meters. The balance of the time he maintains and repairs Hartford Steam's own plant meters that measure steam and chilled water flow plus river water flow at the pumphouse.

Bob knew Hartford well even before he joined Hartford Steam. He worked as an electrician in the Department of Public Works for the City of Hartford, so he was familiar with all of the municipal buildings. Prior to his work for the City, Bob worked for IBEW Local Union 35 on new construction jobs in the area.

Bob is a master electrician and also holds an associate's degree in business administration.

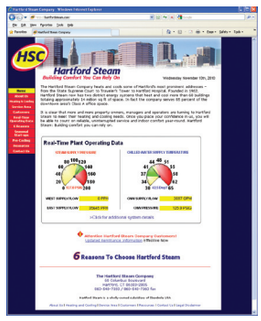
"I like the variety I have in my work," says Bob. "I handle the technical side of the meters, but also keep all meter records for each customer. And I enjoy the guys I've gotten to know at our customers' buildings. They're down-to-earth guys, and it's always good to see them and catch up on what's going on at their buildings."

Although many of us dread the coming winter months, Bob looks forward to them. He's an avid downhill skier who intends to give cross-country skiing a try this year. He also bowls and enjoys working outside around his home.

Thanks, Bob, for 30 years of service at The Hartford Steam Company.

MORE THAN 30 ATTEND HARTFORD STEAM SEMINAR.
More than 30 people from customer buildings attended Hartford Steam's "District Heating and Cooling Savings and Solutions," a five-hour seminar held on Oct. 29 at F.W. Webb Training Center. Guest speakers covered energy conservation for steam, chilled water and condensate, controls for building automation, and pumps 101 and solutions. The free seminar was an opportunity for customers to learn how to further optimize their use of steam and chilled water, ask questions about Hartford Steam's service and exchange best practices with other attendees. Held annually, the seminar topics and speakers change each year to bring customers the latest operational insight. We thank all who attended and hope to see you again at next year's session.

Bookmark Our Site!



Hartford Steam's home page now features real-time steam supply pressure and chilled water supply temperature information. There's even a link to a page that displays specific steam pressures and chilled water supply and return temperatures at different downtown locations. These features were recently added to the Web site to give customers the information they need to optimize their use of Hartford Steam's steam and chilled water. Check out our Web site today and bookmark it for daily reference. **www.hartfordsteam.com**

HSC Hartford Steam
Building Comfort You Can Rely On

www.hartfordsteam.com

60 Columbus Boulevard
Hartford, CT 06103-2805

In the Loop is a publication of
The Hartford Steam Company

Emergency? Call (860) 725-7005.
For information, call (860) 548-7348.

Printed on recycled paper that includes 100% post-consumer fiber.

John Pinone
150 Trumbull St. Associates, LLP
150 Trumbull Street
4th Floor
Hartford, CT 06103

HSC Hartford Steam
Building Comfort You Can Rely On

Issue 3, 2010

SPECIAL METERING FOCUS

in the Loop

Accurate Metering a Top Priority

At The Hartford Steam Company, we are dedicated to installing and maintaining our steam, hot water and chilled water meters to provide precise, dependable readings.

Hartford Steam's district energy services are metered at each customer location. We provide high-quality meter(s) and sensors to the customer without charge upon commencement of service. Most locations need just one steam or hot water meter and one chilled water meter. Some larger buildings are unique and require additional meters.

The type of meter provided varies based on the application and location of each meter at the customer's site.

Typical customer metering system installation.

Steam Meters. The company primarily uses orifice plate meters to measure steam use. The orifice plate meter is a differential pressure flow meter. The steam passes through a restriction, and the pressure and temperature differential are measured across that restriction.

Vortex-shedding and condensate meters are used in a few Hartford Steam customer buildings. Vortex-shedding meters determine steam velocity from the frequency at which vortices are generated by an obstruction in the flow. The condensate meter collects and measures condensate volume and/or flow.

Chilled Water Meters. The company's chilled water meters are primarily ultrasonic meters with high-accuracy transducers. The meters log inlet and outlet chilled water temperatures and flow to determine the amount of energy used.

In addition, magnetic (mag) flow meters are used at several customer facilities. A mag flow meter is a volumetric flow meter that does not have any moving parts.

Sensors. The most common type of sensor is a resistance temperature detector (RTD), which achieves accurate repeatable temperature measurement. Hartford Steam uses a high-quality RTD to obtain supply- and return-temperature readings. The RTD is calibrated based on National Institute of Standards and Technology (NIST) standards. The differential pressure transmitter is also calibrated to NIST standards.

Meter Readings and Data Review

Data from a building's steam and chilled water flow meters and temperature sensors are fed into a metering panel – essentially an energy calculator – at each customer's building. The metering panel has a programmable logic controller (PLC) that is tailor-made for Hartford Steam, which uses the information from the flow and temperature sensors to calculate a building's energy use. Our metering technician reads both the steam and chilled water panel displays each week and at the end of each month.

The weekly readings are checked for anomalies, such as high or low readings that would indicate a potential problem or change in the building's energy use. If any anomalies are detected, the metering technician revisits the building to test the meter's operation and makes repairs as needed.

At month-end, all customers' monthly steam, hot water and chilled water readings are reviewed and compared to the prior year's readings. The heating and cooling degree-day data and the precise number of days in the billing cycle give insight on possible consumption trends for the current billing period.

Maintenance and Calibration

To ensure meters and transmitters are operating at optimal design specifications, Hartford Steam has an ongoing metering maintenance program that includes calibration of each flow meter, temperature sensor and metering panel at least once a year.

We contract with an third party to assist with meter startup and commissioning and annual meter calibration. Calibrations are performed at each customer's facility. Hartford Steam and the contractor verify each flow meter's accuracy with a standard traceable to the NIST. Adjustments are made as necessary and

then certified to be NIST traceable. Customers are notified when calibrations are scheduled for their facility and are welcome to witness the calibration process.

Knowledge Is Power

Hartford Steam encourages customers with energy management systems (EMS) to tap into a valuable information resource: our PLC metering panel. We will work with these customers to provide them with four PLC data ports so they can monitor their own steam and chilled water use. Some customers are already connected and are taking advantage of this opportunity to learn more about their buildings' energy consumption patterns. With that knowledge comes the power to adjust or reduce energy use.

Reading Downtown

Bob Lanza installs, maintains, repairs and reads Hartford Steam's customer meters.

Bob Lanza knows downtown Hartford well. In fact he probably knows it better than most, as he visits 44 downtown buildings each week to read Hartford Steam's steam, condensate and chilled water meters.

Bob started with Hartford Steam in 1980 as an electrician and instrument technician. Although much of his work was initially in the Main Plant, Bob was selected to perform the weekly and monthly customer meter readings, which sent him out into the community. His training gave him insight on meter operation and soon he was also conducting meter installation, maintenance and repair.

Now with the title of plant technician, 95 percent of Bob's work is with customer meters. The balance of the time he maintains and repairs Hartford Steam's own plant meters that measure steam and chilled water flow plus river water flow at the pumphouse.

Bob knew Hartford well even before he joined Hartford Steam. He worked as an electrician in the Department of Public Works for the City of Hartford, so he was familiar with all of the municipal buildings. Prior to his work for the City, Bob worked for IBEW Local Union 35 on new construction jobs in the area.

Bob is a master electrician and also holds an associate's degree in business administration.

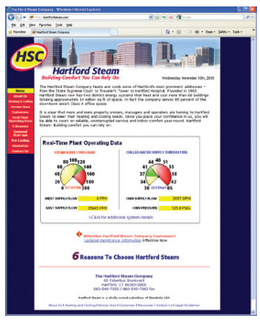
"I like the variety I have in my work," says Bob. "I handle the technical side of the meters, but also keep all meter records for each customer. And I enjoy the guys I've gotten to know at our customers' buildings. They're down-to-earth guys, and it's always good to see them and catch up on what's going on at their buildings."

Although many of us dread the coming winter months, Bob looks forward to them. He's an avid downhill skier who intends to give cross-country skiing a try this year. He also bowls and enjoys working outside around his home.

Thanks, Bob, for 30 years of service at The Hartford Steam Company.

MORE THAN 30 ATTEND HARTFORD STEAM SEMINAR.
More than 30 people from customer buildings attended Hartford Steam's "District Heating and Cooling Savings and Solutions," a five-hour seminar held on Oct. 29 at F.W. Webb Training Center. Guest speakers covered energy conservation for steam, chilled water and condensate, controls for building automation, and pumps 101 and solutions. The free seminar was an opportunity for customers to learn how to further optimize their use of steam and chilled water, ask questions about Hartford Steam's service and exchange best practices with other attendees. Held annually, the seminar topics and speakers change each year to bring customers the latest operational insight. We thank all who attended and hope to see you again at next year's session.

Bookmark Our Site!



Hartford Steam's home page now features real-time steam supply pressure and chilled water supply temperature information. There's even a link to a page that displays specific steam pressures and chilled water supply and return temperatures at different downtown locations. These features were recently added to the Web site to give customers the information they need to optimize their use of Hartford Steam's steam and chilled water. Check out our Web site today and bookmark it for daily reference. **www.hartfordsteam.com**

HSC Hartford Steam
Building Comfort You Can Rely On

www.hartfordsteam.com

60 Columbus Boulevard
Hartford, CT 06103-2805

In the Loop is a publication of
The Hartford Steam Company

Emergency? Call (860) 725-7005.
For information, call (860) 548-7348.

Printed on recycled paper that includes 100% post-consumer fiber.

James Daddario
18 Temple Street LLC
942 Main Street
Suite 300
Hartford, CT 06103