DAWSON CO.
YOUR FLUID TECHNOLOGY RESOURCE

Hydronic News

of Southern California & the State of Hawaii

1948 76 2024

Vol. 27 October 2024

Victoria Place Ward Village: Elevating Luxury Urban Living in Honolulu

Honolulu welcomes its latest architectural marvel, Victoria Place, a 40-story luxury high-rise on Ala Moana Blvd. Positioned centrally in Ward Village, adjacent to Victoria Ward Park and Ward Entertainment Center, this stunning tower sets new standards for urban living with its prime location, top-tier amenities, and breathtaking views of Kewalo Harbor and its scenic marina.

The success of this project is a testament to the collaborative efforts of several key players. The contractor, Commercial Plumbing, with project manager Frank Wilhelm and Foreman Sean Tamayoshi, ensured the seamless execution of the project. Ferguson's Honolulu branch, represented by Austin Bryant, supplied essential materials, while the mechanical engineering expertise was provided by ESD (Environmental Systems Design). Dawson Company's Manny Masso and Brandon Piriyakarnjanakul played pivotal roles in delivering high-quality solutions on schedule for this project.

A standout feature is the state-of-the-art hot water system, meticulously designed and installed in the penthouse. Dawson Company, in partnership with Ferguson, provided Commercial Plumbing with two 1600-gallon vertical cement-lined hot water storage tanks manufactured by Cemline Corporation, offering an impressive 30-year warranty. These tanks are complemented by a pair of Bell & Gossett AP62DW-64 double wall plate & frame heat exchangers for efficient water heating.

(Continued on pg. 2)

Project Highlights

Victoria Place Ward Village in Honolulu (contintued...)

The domestic hot water recirculation system is served by six B&G BP-615-60 single wall brazed plate heat exchangers, ensuring consistent and reliable hot water supply throughout the building. To protect the building's domestic water piping from over-pressurization due to thermal expansion, two Wessels TXA-200 tanks have also been installed. Additionally, UL listed expansion loops manufactured by Metraflex provide further safety and reliability.

Victoria Place Ward Village is not just a residential tower; it is a symbol of luxury and innovation. This project showcases Dawson Company's commitment to excellence and the power of collaboration in bringing visionary projects to life.

For future Hawaii projects please contact: Manny Masso at mmasso@dawsonco.com or Brandon Piriyakarnjanakul at bpiriyakarnjanakul@dawsonco.com

Product Highlights

FlowTherm Systems

By: Matthew Warner, Business Development Group

Acknowledging a need for prefabricated engineered equipment, in 1970 CHC Hydronics began a packaging and manufacturing division called **FlowTherm Systems** that utilizes many of the components built by Bell & Gossett, Lochinvar, Wessels and Heat-Timer. These pre-engineered systems provide a unique packaged product to our industry that has been widely appreciated and accepted in the marketplace.

To further their commitment to quality, **FlowTherm Systems** received the Underwriters Laboratories (UL) approval status in 1998, and has since received IAPMO, NSF/ANSI 61 certification, and approval by the City of Los Angeles. The UL and IAPMO listing provide nationally recognized 3rd party quality assurance, which provides a strong specification tool that assures that the product is built to rigid specifications and code compliance. OSHPD Special Seismic Pre-approval can also be obtained by performing a shaker table test of the packages and the control panel. This test includes one day of testing, a lab report, certifications, and a label for the system control panel.

FlowTherm Systems is a leading supplier of packaged systems for pumping and heat transfer applications. Considering the overall system requirements of each package is just the beginning though, and FlowTherm addresses the smallest details and the most rigorous specifications in an effort to produce the most premium and robust engineered packaged equipment to meet customer specifications at an affordable price.

Contractor Benefits:

- Up-front cost assurance, eliminating unknown labor cost variables
- Single-source responsibility
- Minimized field coordination issues and labor
- Rigid structural steel platform, easily rigged and installed at the job site
- High-quality system construction that exceeds national code requirements
- Confidence dealing with an established company with a long track record of customer satisfaction
- Complete customer support including submittals, drawings, and O&M instructions and layout and application assistance throughout the project

Engineer Benefits:

- Guaranteed system performance
- Experienced application assistance
- Assurance of matched and compatible system components
- Equipment manufactured to ASME/ANSI standards
- Professional AutoCAD and 3D drawings provided with accurate dimensions and weights
- Flexible system configurations and options for customer requirements
- Extensive selection of standard configured packages

Lochinvar Condensing Appliance Installation, Maintenance & Troubleshooting

Taught By: Steve McCool, Facilities Support Group Manager

In an informative session here in June, Steve McCool engaged enthusiastic seminar participants in Pomona with an in-depth seminar on Condensing Appliance Installation, Maintenance & Troubleshooting. Covering a broad spectrum of subjects including proper installation, piping and controls, Lochinvar Crest & Hellcat combustion technology, product identification and function of product components, sequence of operation, controls, warranty & maintenance, and troubleshooting and operation issues with any condensing appliance.

For those of you who missed it, Steve McCool will teach this class again on October 24th, 2024.

Nick Ekdahl, Director of Training & Education and Steve McCool, Facilities Support Group Manager

For a list of more classes please check our website or visit: https://dawson-company.coursestorm.com/

For more information on Lochinvar equipment please email:
smccool@dawsonco.com

Plumbing Design, Booster Pumps with Water Heater Systems Class

Taught By: R.J. Santiago, CPD, GPD, Business Development Group

In July, R.J. Santiago, CPD, GPD traveled to Dawson San Diego to conduct an in-depth training for Design Engineers. Seminar highlights included **Centrifugal Pumps** (pump function, open & closed systems, parallel & series pumping, and motor basics), **Domestic Water Pressure Boosters** (sizing pressure boosters & tanks) and **DHW Recirculation Design & Sizing** (Hot Water Recirculation, piping design, and system balancing.)

For more information please contact:
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For more upcoming classes please visit: **www.dawsonco.com** and click on **Training** or scan:

Giving Back

Dawson Company Joins Walk for Water Challenge

Dawson Company proudly participated in the Walk for Water Team Challenge, an event organized by Xylem Watermark, from June 1-30, 2024. This nationwide initiative saw Xylem employees and Bell & Gossett representatives across the country walking to raise funds for schools without access to clean drinking water. Proceeds from the challenge support the Chris Long Foundation's Waterboys initiative, which is dedicated to providing clean water to one million people around the world.

This year's event saw an impressive 689 participants, 3x more than last year, all working together to make a meaningful impact. We're excited to share that both Dawson Company teams ranked in the Top 5, contributing to Xylem's collective effort of raising over $34,000. Together, participants took a remarkable 184,034,456 steps!

To support this cause, visit:
https://waterboys.org/donate/

Dawson Co. Shines at the ASHRAE Hawaii Golf Tournament

On Friday, May 3, 2024, Dawson Company proudly participated in the 36th Annual ASHRAE Hawaii Chapter Golf Classic at the Hawaii Prince Golf Club on Oahu. Representing the company were Ric Serafin, President & CEO, Manny Masso, VP of Key Accounts and Brandon Piriyakarnjanakul, Outside Sales, who took to the greens in support of the ASHRAE Hawaii Chapter's Kokua Scholarship Fund and the upcoming Region X 2026 Hawaii Chapter Regional Conference.

The tournament, a highlight of the HVAC/R community, brought together industry leaders and professionals to enjoy a day of friendly competition while supporting future talent.

Proceeds from the event were dedicated to the Kokua Scholarship Fund, which provides financial assistance to Hawaii-based undergraduate students pursuing careers in the HVAC/R industry.

Dawson Company is committed to fostering the next generation of professionals and was honored to contribute to such a worthy cause. The event not only highlighted the company's dedication to the industry but also provided an excellent opportunity for networking and camaraderie within the HVAC/R community.

The Hidden Efficiency Thieves: How Scale and Biofilm Impact HVAC Systems

By: Kendal Smith, Business Development Group

HVAC systems are crucial for maintaining comfort and air quality in residential, commercial, and industrial settings. However, like any complex machinery, they require regular maintenance to function optimally. Two often-overlooked issues that can significantly impact the efficiency of HVAC systems are scale and biofilm. These culprits not only reduce the system's performance but can also lead to increased energy costs and potential system failures.

Understanding Scale and Biofilm in HVAC Systems

Scale is a hard, mineral-based deposit that forms in water systems. In HVAC systems, scale typically accumulates on heat exchangers and other metal surfaces where water is heated or cooled. This buildup acts as an insulating layer, reducing the efficiency of heat transfer. When the heat exchanger becomes covered with scale, the system must work harder to achieve the desired temperature, leading to higher energy consumption.

If left untreated, scale can cause significant damage to the heat exchanger. For example, as shown in the picture below, scale buildup can insulate the pipes, leading to overheating. This can cause the tube connecting to the header to fail, resulting in leaks. The heat exchanger would then need to be replaced, incurring costs and causing system downtime.

Biofilm, on the other hand, is a slimy layer of microorganisms that adhere to surfaces in a moist environment.

In HVAC systems, biofilm often develops wherever water and air come into contract, such as cooling coils, and drainage pans. It creates a breeding ground for bacteria and fungi, which can obstruct flow and degrade system performance. The presence of biofilm can lead to poor air quality, unpleasant odors, diseases like legionella, reduced efficiency, and increased maintenance requirements.

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or call 626-429-9312

Continued on page 7....

Technical Matters

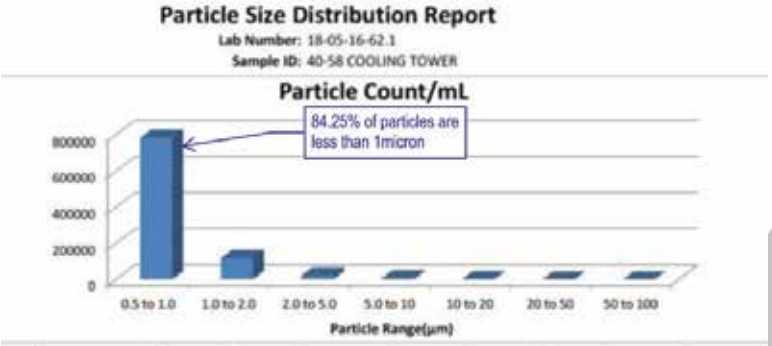
The two charts below show just how much efficiency is lost due to biofilm (on the left) and limescale (on the right). Note that even the slightest amount of biofilm or scale will reduce the efficiency significantly.:

Efficiency Loss from Biofilm in Condenser Tubes	
Biofilm Thickness in Tubes	Increase in Energy
0.006 inches	5.30%
0.012 inches	10.80%
0.024 inches	21.50%

Efficiency Loss from Limescale in Condenser Tubes		
Limescale Thickness in Tubes	Fouling Factor	% Efficiency Loss
0 inches	0.0000	0
0.01 inches	0.0008	9
0.02 inches	0.0017	18
0.03 inches	0.0025	27
0.04 inches	0.0033	36
0.05 inches	0.0042	45

Preventing and Addressing Scale and Biofilm Issues

1. **Regular Maintenance**: Routine maintenance is crucial for preventing scale and biofilm buildup. This includes cleaning heat exchangers, cooling coils, and ductwork, as well as checking for signs of scale and biofilm accumulation. Most facilities will clean the heat exchangers at the end of the season, which leaves most of the season with efficiency losses. Finding a way to prevent it will always be better than cleaning it each season.
2. **Water Treatment**: Installing water treatment solutions such as water softeners or anti-scaling agents can help prevent scale formation. These treatments reduce the hardness of the water and minimize the potential for scale buildup. For a closed-loop system, the chemical used to prevent corrosion from dissolved oxygen is Sodium Nitrite. Nitrite is an oxidizer and attempts to passivate or form a protective oxidative coating on the steel and copper surfaces to reduce corrosion form dissolved oxygen. This seems backwards as you oxidate the piping to prevent oxidation. EasyWater (a water treatment company) offers a media that removes dissolved oxygen, addressing this issue effectively.
3. **Biocides and Cleaners**: Periodic application of biocides and specialized cleaners can help manage biofilm growth. These chemicals target and remove microbial colonies, reducing the risk of biofilm formation and improving system hygiene. However, chemicals have limitations and may corrode piping if overused. If you cannot eliminate the biofilm because the system has reached the max limit of chemicals, the microbial colonies will come back in force as there is still food for them to survive.
4. **Enhanced Filtration**: Using high-efficiency filters can help capture particles and microorganisms before they reach sensitive components of the HVAC system. This reduces the likelihood of biofilm development and maintains better air quality. When looking at a filtration system, the most important metric to look at is the micron level. Looking at the chart below, 97% of the particles are below 2 microns with 84% being smaller than 1 micron. To filter all particles effectively, a sub-micron filtration system is needed.
5. **System Inspections**: Regular inspections by qualified technicians can identify early signs of scale and biofilm issues. Early detection allows for timely intervention and prevents more severe problems from developing.



Particle Range(µm)	0.5 to 1.0	1.0 to 2.0	2.0 to 5.0	5.0 to 10	10 to 20	20 to 50	50 to 100	Total Counts
Particle Count/mL	783100	117200	20600	6300	2000	300	0	929500
Percent of Total	84.25%	12.61%	2.22%	0.68%	0.22%	0.03%	0.00%	100.00%

Dilution Factor =	100

Conclusion:

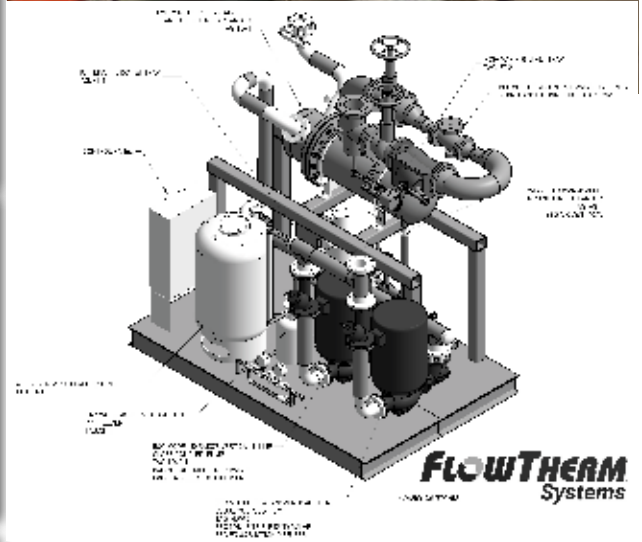
Scale and biofilm are significant efficiency thieves in HVAC systems, affecting performance, energy consumption, and maintenance costs. By understanding their impact and implementing proactive measures, building owners and facility managers can ensure their HVAC systems operate efficiently and reliably. Proper water treatment can prevent scale and biofilm buildup, reducing maintenance and simplifying system inspections.

Please contact your local Dawson Company representative to discuss the best water treatment solutions for your system!

Project Highlights

Caltech Spaulding Lab

By: Kim Palacios, Outside Sales Representative
Mechanical Contractor: Plumbing Piping & Construction (PPC)



Dawson Company, in collaboration with FlowTherm, and Plumbing Piping and Construction, recently provided an exceptional solution for Caltech's Spaulding Lab. Utilizing the lab's existing building steam, they integrated a space saving sytem tailored to the facilities unique needs.

The project centered around a Bell & Gossett heat exchanger, hot water pumps, an expansion tank, an air separator, and a pot feeder. These components were integrated into a compact skid design, which was divided into two pieces to ensure easy passage through the lab's doorways.

This customized solution not only met the heating requirements of Caltech Spaulding Lab, but also fit seemlessly into a mechanical room with limited space. This project is a testament to Dawson Company's dedication to innovative hydronic solutions and highlights the power of collaboration in overcoming engineering challenges.

The FlowTherm package consisted of:
(1) Bell & Gossett SU163-4 Shell & Tube HX
(2) Bell & Gossett e80 3x3x7B inline pumps
(1) Wessels NLA-200 bladder expansion tank
(1) Wessels WVAN-4 Dirt & Air Separator
(VFDs, Control Panel, Pump trim, Hoffman Steam Traps, control valve and pot feeder were also included in the skid package.)

Kim Palacios
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Project Highlights

High-Efficiency Solutions for Beyond Meat's New Headquarters

By: Jen Neumeister, Outside Sales
Partnering with: Fluid Gauge Company / ACCO Engineered Systems

Dawson Company has recently completed a significant project at Beyond Meat's new headquarters in El Segundo, CA. Partnering with Fluid Gauge Company / ACCO Engineered Systems, we supplied cutting-edge Lochinvar equipment to support the company's ambitious expansion into a 300,000-square-foot, state-of-the-art office and R&D facility.

Beyond Meat, known for revolutionizing the plant-based food industry, required top-tier systems to meet the high demands of their new space. The Lochinvar equipment provided by Dawson Company ensures reliable and efficient service for both the domestic hot water needs and the specialized hot water wash-down processes vital to the facility's R&D operations.

The equipment included:

2 - AWH2000NPM Lochinvar Armor water heaters
2 - RGA0752-5 Lochinvar tanks
2 - AWH1500NPM Lochinvar Armor water heaters
2 - RGA0504-5 Lochinvar tanks
3 - B&G ecocirc+ 2-18 building recirculation pumps

BEYOND MEAT

In addition to housing Beyond Meat's headquarters, this expansive campus also serves as the West Coast headquarters for French personal care giant, L'Oreal.

This project exemplifies Dawson Company's commitment to providing high-efficiency solutions that meet the unique needs of our clients. We are proud to contribute to such foward-thinking developments, and we look forward to continuing to support innovative companies like Beyond Meat as they lead the way in their industries.

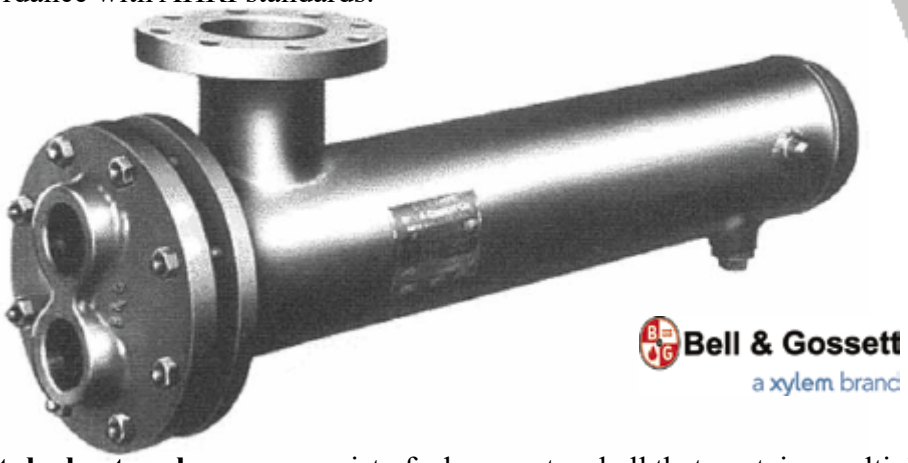
For more inquiries please reach out to
Jen Neumeister at: **jneumeister@dawsonco.com**

Ekdahl Explains : Heat Exchangers

By: Nick Ekdahl, CPD, GPD, Director of Training & Education at Dawson Co.

Shell and tube heat exchangers and plate heat exchangers are both types of heat exchangers, but they have different designs and functions.

The main differences between shell and tube heat exchangers and plate heat exchangers are their design, efficiency, and size. Shell and tube heat exchangers are typically larger and more robust, while plate heat exchangers are smaller and more efficient. Both designs are commonly used in HVAC applications and are manufactured to ASME requirements. Gasketed plate and frame heat exchangers can also be manufactured in accordance with AHRI standards.



Shell and tube heat exchangers consist of a large outer shell that contains multiple smaller tubes inside. Heat is transferred between the fluid in the tubes and the fluid outside the tubes through the tube walls. Shell and tube heat exchangers are typically used for high-pressure and high-temperature applications, as well as in processes where fouling and corrosion are a concern. Straight tube heat exchangers are an older technology used mainly in industrial applications with constant heat loads while newer U-Tube bundle designs are commonly used in space heating applications where expansion and contraction of the bundle occurs due to modulating heat loads.

Pros of Shell and Tube Heat Exchangers:

1. Can handle high pressure and high-temperature applications.
2. Can be manufactured to TEMA requirement as well as ASME.
3. Typically have a longer lifespan and are more durable.
4. Easier to clean and maintain.
5. Handles wide ranges of fluid types & viscosities.
6. Many more material choices.
7. Preferred for Steam to Water latent heat transfer applications.

Cons of Shell and Tube Heat Exchangers:

1. Larger and bulkier in size, requiring more space.
2. Tube Bundle removal and replacement requires at least the same free distance in front of the heat exchanger as it is long.
3. Lower heat transfer efficiency compared to plate heat exchangers.
4. Higher initial cost.
5. More susceptible to fouling and corrosion.

(Continued on page 11....)

Ekdahl Explains: Heat Exchangers (continued...)

By: Nick Ekdahl, CPD, GPD, Director of Training & Education at Dawson Co.

Plate heat exchangers, on the other hand, consist of multiple thin plates that are stacked together with small gaps between them. Some have elastomer gaskets for disassembly while others have plates that are braised together. Heat is transferred between the fluids flowing through the gaps in the plates. Plate heat exchangers are more compact than shell and tube heat exchangers, making them ideal for applications where space is limited or where high heat transfer rates are required.

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Pros of Plate Heat Exchangers:

1. More compact and space-efficient design.
2. Higher heat transfer efficiency due to the larger surface area.
3. Can handle a 2° approach between the two outlet fluid temperatures.
4. Due to the true counterflow design, a "temperature cross," where the cold exiting fluid temperature exceed the hot fluid exiting temperature is achievable.
5. Easier to modify or expand the gasketed design heat exchangers for future conditions.

Cons of Plate Heat Exchangers:

1. Limited to lower pressure and temperature applications.
2. Higher pressure drops resulting in higher horse power pumps.
3. Not recommended for steam to water applications since this led to gasket degradation and failure and difficulties in draining condensate can cause plate corrosion.
4. Less durable and prone to leaks.
5. More challenging to clean and maintain.
6. More expensive to repair or replace if damaged.

Overall, the choice between a shell and tube heat exchanger and a plate heat exchanger will depend on the specific requirements of the application, such as space constraints, temperature and pressure conditions, and maintenance needs.

This Quarter's Corporate Value:

INTEGRITY

Doing the right thing in a reliable way when you say you are going to.

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