

Hydronic News

of Southern California



Vol. 24 April 2023

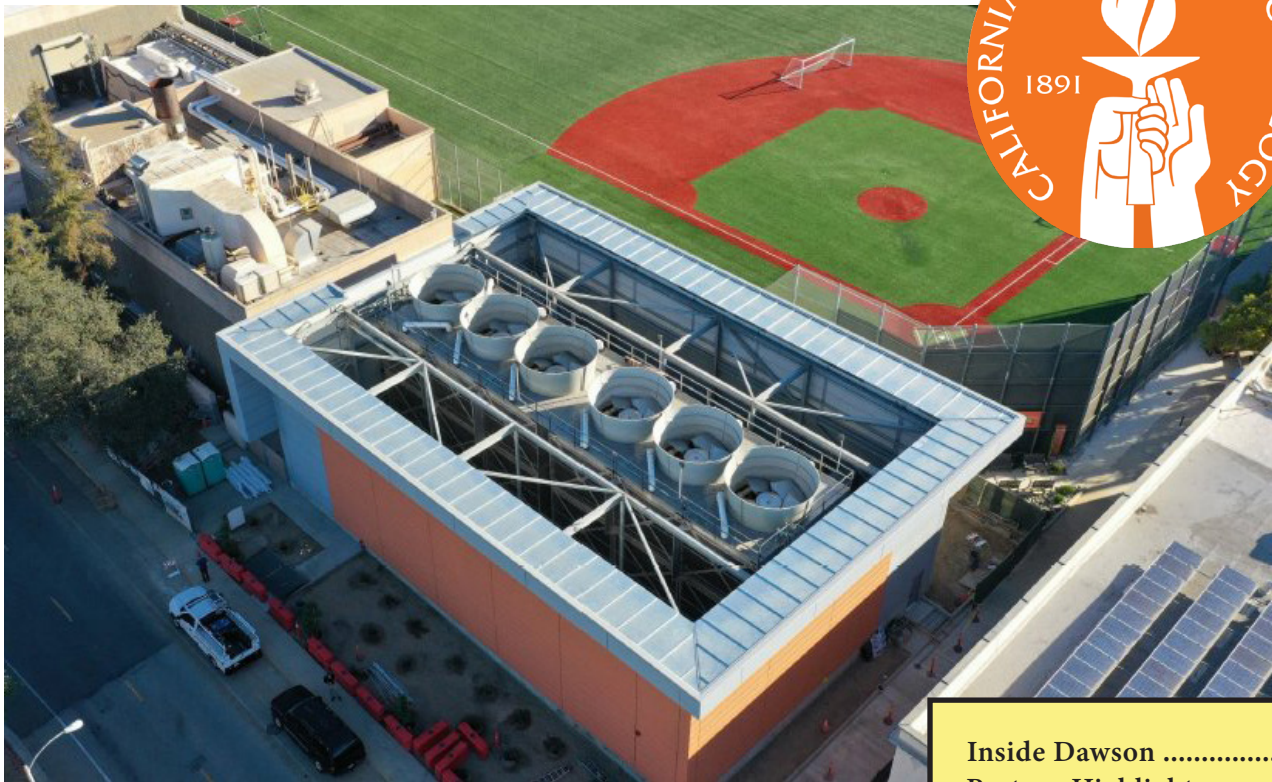


Caltech (California Institute of Technology) Central Utilities Plant Cooling Tower Replacement

By Steve McCool, Facilities Group Manager

When Caltech planned to replace their aging Central Utilities Plant cooling towers, the decision was made to include new tower water and campus chilled water pumps and drives on campus. Caltech's senior Project Manager Ben Smith was in charge of the project which was awarded to general contractors, Layton Abbott Construction, and mechanical contractor Plumbing, Piping & Construction. The engineer of record was Affiliated Engineers Inc., with Andrew Schuetz on point for the mechanical equipment specs.

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Inside Dawson

Dawson Company's Holiday Food Drive

What is a better way to give back to the community than by helping others? In December, Dawson Company hosted our Annual Holiday Food Drive. This year Dawson donated to the Pomona Valley Food Bank which is run by Pastor Allan Espinoza. The food bank is a Non-Profit organization that has been providing Ministry since 1996. The food bank provides support to Churches, Pantries, Organizations such as Veterans & Youth, Drug & Alcohol Rehabilitation Centers, and Social Services. The Pomona Valley Food Bank is open all year round and is located at 284 E. Holt Ave. Pomona CA 91767. You can also visit their site at : www.pomonafoodbank.org or call 626-200-0356 for further inquiries.

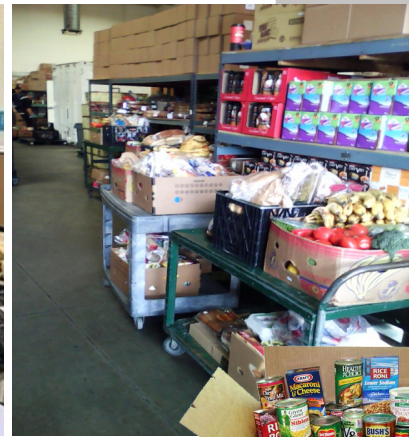
Inside Dawson

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Project Highlights

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Technical Matters



**FOOD DRIVE
GIVE TODAY!**

**FOOD DRIVE
GIVE TODAY!**



Dawson Co. welcomes New Hire Jorge Choy



Jorge Choy joins Dawson with 30 years of experience in the construction industry. Over the years, Jorge has worked in the Residential, Commercial and Industrial fields. Some of the former companies Jorge worked for include Microgrid, Solar Fields, and Combined Heat & Power Solutions (CHP). Jorge's role at Dawson is as an Outside Sales Representative focusing on Contractor Sales. Jorge graduated from the University of Phoenix earning his degree in Business and Accounting. Jorge currently resides in Orange County with his wife and 2 children and he enjoys fishing, golf and family road trips.

Inside Dawson

Practical Solutions To Decarbonize Your Gas-Fired Space Heating & Domestic Hot Water Systems

By Steve McCool, Facilities Group Manager

Inside Dawson

Dawson Company regularly conducts in house training classes. Dawson held a Lochinvar Decarbonization & Servicing class instructed by Facilities Support Group Manager, Steve McCool. Attendees included several contractors & engineers. Steve has 37+ years experience selling and servicing boilers. See our future class schedule at Dawsonco.com and register today!

Partner Highlights



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Steve McCool can be reached at smccool@dawsonco.com

HVAC Centrifugal Pump Design, Application & Expansion Tank Sizing/Air Elimination Application Seminar

By Eric Decker, Business Development Group

Dawson Company hosted an HVAC Centrifugal Pump Design class. The class reviewed pump basics, system curve analysis, and pump accessories. Instructed by Dawson Co's Business Development Group Manager, Eric Decker who has 15+ years in the industry. See our future class schedule at Dawsonco.com and register today!



Eric Decker can be reached at edecker@dawsonco.com

Partner Highlights

In partnership with Xylem Watermark, Dawson Company holds its 2nd Annual Beach Clean Up Day on 9/17/22 in Seal Beach, CA

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Kim Palacios, Outside Sales & Nick Ekdahl, Director of Training and Education



Kendal Smith, BDG and The Smith Family with Ric Serafin, President & CEO



Scott Taber, Outside Sales and Family



Ric Serafin, President & CEO of Dawson Co.

Project Highlights

Caltech Central Utilities Plant Cooling Tower Replacement

Project Location: Pasadena, CA

Project Contractors: Layton Abbott Construction and Plumbing, Piping & Construction

Engineering Firm: Affiliated Engineers Corporation

By: Steve McCool, Facilities Support Group Manager

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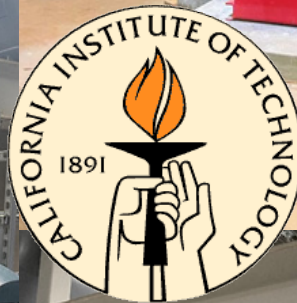
Caltech's intention was to directly pre-purchase the cooling towers, pumps and variable frequency drives to get a jump on the lead times. There were (3) pump and drive manufacturers considered for the project, and after a competitive bid process, the pumps and drives were awarded to Dawson Company for the best overall performance and value to Caltech. The chosen pumps were Bell & Gossett's new e-HSC Double Suction Centrifugal Horizontal Split Case pumps and ABB's ACH580 Ultra-Low Harmonic VFD's. Special thanks to Air Treatment Corporation for a cooperative partnership in providing support for the ABB Drives.

(4) Bell & Gossett e-HSC 10 x 12 x 15.5
350HP Chilled Water Pumps

(4) ABB ACH580 Ultra-Low Harmonic
350HP VFD drives

(4) Bell & Gossett e-HSC 14 x 18 x 20
250HP Tower Water Pumps

(4) ABB ACH580 Ultra-Low Harmonic
250HP VFD drives



Steve McCool can be reached at:
smccool@dawsonco.com

Project Highlights

TriLink BioTechnologies



Project Location: San Diego, CA
Mechanical Contractor: Pacific Rim Mechanical
Engineering Firm: Pacific Rim Mechanical
By: Joe Wells, Outside Sales Representative

Inside Dawson

Partner Highlights

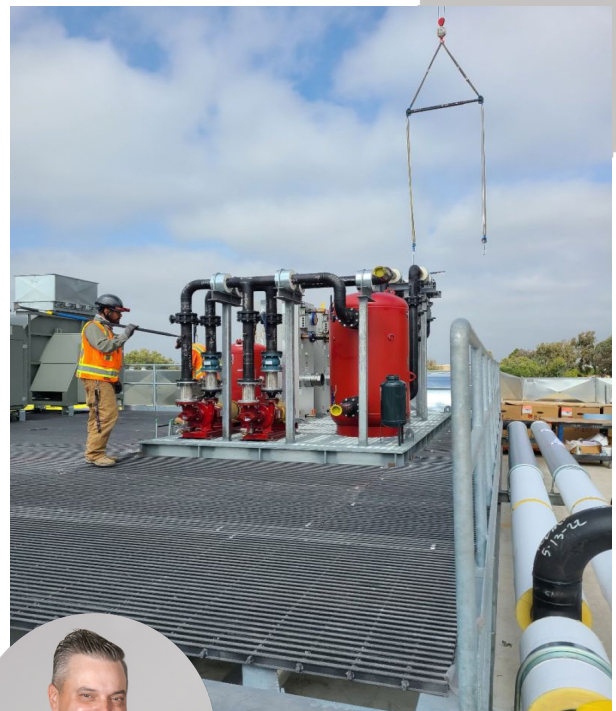
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After TriLink BioTechnologies purchased 2 properties in the San Diego area, the need arose to construct new buildings for their operations. Dawson Company represented Lochinvar and Bell & Gossett products which were chosen to be provided for the facilities HVAC system requirements. The mechanical system was engineered and installed by Pacific Rim Mechanical. Senior Project Manager Jeff Genzlinger and Assistant Project Manager Kolter Knapp oversaw the complex installation which was flawlessly laid out by Victor Soto and his team of detailers.

The HVAC system consisted of 2 Lochinvar PFN2001 Boilers and 6 Bell & Gossett e-1510 base mounted end suction pumps. The system also included B&G suction diffusers, and air separators. The flexible metal hoses were provided by Metraflex and chosen to ease the installation by using the RMF reducing hoses. The chilled water buffer tank was provided by Wessels. These Dawson Company represented products were chosen and installed for their high quality, and low maintenance resulting in low life cycle cost. TriLink BioTechnologies will not have to worry about having any future HVAC issues with the chosen equipment, as well as the high energy savings.



Joe Wells can be reached at jwells@dawsonco.com

Product Highlights

Reliance Detection Technologies



Water Heater Leak Alarm & Shut Off Systems

Inside Dawson

Water heater and water tank failures can happen at any time, often without warning, and can cause substantial flooding and property damage if nobody is nearby to detect the leak right away. FloodMaster RS-094 series water heater leak alarm and automatic shut-off systems are ideal for minimizing water damage when these failures occur – even in plenum spaces.



The RS-094 is especially suited for the following applications: Residential and commercial water heaters, including those in plenum spaces (order hard-wired transformer)

Partner Highlights

Simply install the FloodMaster valve to the feed water line for the water tank and place the sensor on the floor, in a pan near the pressure relief valve drain tube, or in a position where the leaking water would first appear. When the water sensor detects leaking water, the system will sound an alarm and automatically shut off the feed water intake to the tank to minimize water damage.

Project Highlights

Water Heater Leak Alarm with 3/4' Automatic Shut-Off Valve

SKU: RS-094-3/4

Description:

The FloodMaster RS-094 is the dependable choice for detecting and shutting down water heater leaks before massive flooding occurs. This kit is great for most standard homeowner applications and also includes these commercial-grade components.

- 1-Receiver for box/actuator
- 1-3/4" full port lead-free shutoff valve
- 1-Magnetized water sensor with 8" lead wire
- 1-Metal plate for sensor placement
- 1-120 V AC power plug with 12" lead wire



Product Highlights

Features include:

- Lead-Free NSF/ANSI 61 and 372 valves meet U.S. EPA Safe Drinking Water Standards
- Reduces or eliminates water damage and insurance claims
- Easy Installation
- System is reusable. When alarm sounds, fix the problem and reset unit for continued protection
- Made entirely of corrosion-free materials
- Unit can interface with a home security alarm system or appropriate relay (N/O and N/C dry contacts)
- Reliable gear-driven valve less susceptible to failure from build-up than spring-driven valves

Technical Matters

Technical Matters

What Makes a Boiler more Efficient?

By: Kendal Smith, Business Development Group



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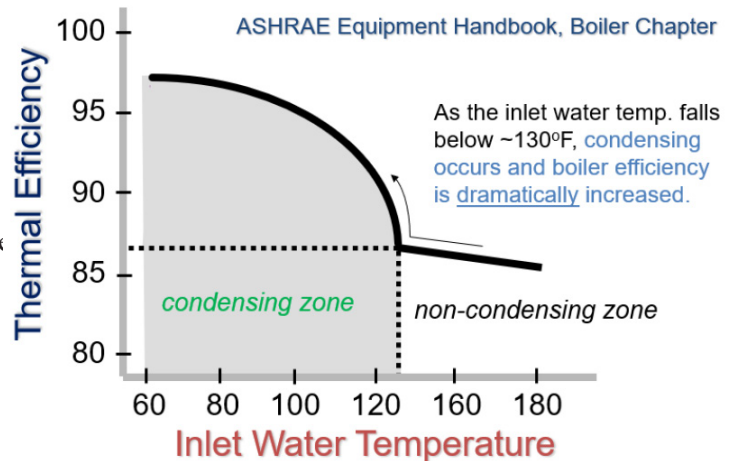
Efficiency of a boiler is based on finding the optimum gas to excess air mixture to produce maximum heat. Too much excess air will not only throw off the optimum mixture, it will also allow more cool air into the combustion chamber reducing the burn temperature. Optimizing a boiler requires the perfect gas to air mixture at high fire and low fire. Lochinvar's modulating boilers can modulate the gas and the air separately to maintain that optimized state. A stage fired boiler at low fire will only have one burner on with a fan that is sized for all the burners on, this will produce a very low efficiency for the boiler.

Assuming the boiler is operating at maximum capacity (where both stage fired and modulating boilers have the gas and air intake optimized), producing the max efficiency of the boiler, the boilers max efficiency can only be around 85%-86%. But wait, there are gas fired boilers now that get up to 97%, how is that possible? The only gas fired boilers on the market that can get above the 85% are condensing boilers. So, what is happening with the boiler to get that higher efficiency?

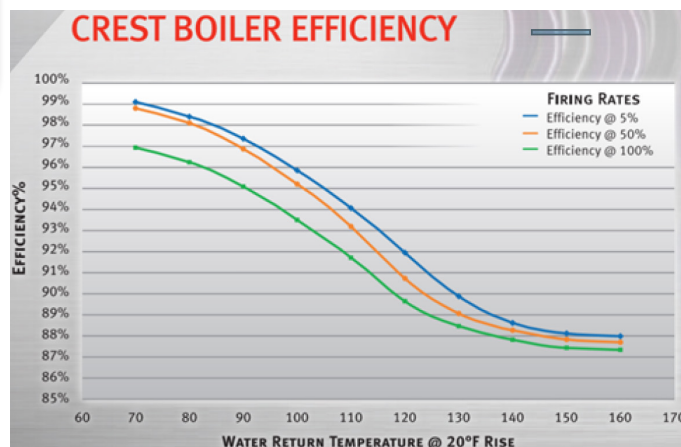
Condensing boilers are designed to condense on purpose and utilize that latent energy. If you look at the steam tables, you will note that at 0 psi of steam there is 970 BTU/lbs of energy to harness. To make a condensing boiler more efficient, you just need it to condense more and you will get more energy out. The question we need to look at then is how do we get more condensation in the boiler?

The inlet water temperature will determine how much condensate the boiler creates, and in turn determines the efficiency of the boiler. If you put a cold can of soda on the table in a hot summer day you will see more condensate form than on a room temperature soda. The same principles apply to the boiler, the colder the inlet water temperature, the more condensate is produced.

This very concept is reflected in the ASHRAE graph shown above. Condensation happens around 130°F, non-condensing boilers must have a minimum temperature of 140°F to avoid condensing and destroying the heat exchanger. Please note that it is possible to have a low water temperature and still not condense. If the combustion has not been optimized, the dew point will be lower and no condensing will happen. Therefore, it is important to select a boiler that can not only modulate, but keep the combustion optimized as it modulates combined with the lower water temperature to get the most condensation possible. All of Lochinvar's modulating boilers are designed to maintain the optimized combustion as they turn down to meet load.



Once you hit a temperature where condensing occurs, you will note that the efficiency goes up dramatically.



Next time you're specifying a condensing boiler, you will note the curve will look roughly the same as the above graph.

The Lower the Inlet Temperature, the higher the Efficiency. For all new construction jobs, it is recommended for the mechanical system to have the lowest inlet temperature as possible. Be aware that there comes a time when having the mechanical system with such low water temperatures is not economically viable since the AHU coils will be too big. A typical mechanical system could have 140°F to 100°F for example. A way to lower the incoming water temperature without changing the mechanical system is to impose the domestic heating load with double walled heat exchangers. The lower the inlet water temperature, the higher the efficiency of the boiler. If you have a condensing boiler running in a non-condensing condition, the highest efficiency that can be achieved is 86%.

Dawson Company Celebrates 75 Years!



Richard & Jack Dawson (1962)



Dawson Company 1948-2023



Dawson Co. Employees (1973)



Dawson Company 333 Glendale Bldg. (1959)



Dawson Company Altadena (2004)



Dawson Company Employees (1962)



Dawson Company Pomona (2022)

Presidents of Dawson Company

Richard "Dick" Dawson



President (1948-1968)

John "Jack" Dawson



President (1968-1998)

Mike Taylor



President (1999-2004)

Ric Serafin



President (2004-Present)

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without being told. -Victor Hugo

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Contact Information:

E-COMMERCE/NEWSLETTER
COMMENTS & QUESTIONS:
Ric Serafin, President / CEO
PO BOX 6011
Pomona, CA 91769
EML: rserafin@dawsonco.com

SALES/PRODUCT
QUESTIONS
David Hernandez
Executive Vice President
(626) 797-9710 Ext. 227
EML: dhernandez@dawsonco.com

ESTIMATING & QUOTE
REQUESTS
Juan Alvarez
Estimating Lead
(626) 797-9710 Ext. 225
EML: jalvarez@dawsonco.com

GENERAL
REQUESTS:
Sales Team
Customer Service Dept.
(626) 797-9710
EML: sales@dawsonco.com

ADDRESS CORRECTION REQUESTED

1681 W. SECOND ST.
POMONA, CA 91766

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