

# Tri-County Super Heat

ASHRAE  
American Society of Heating, Refrigeration, and Air-Conditioning Engineers

## in this issue

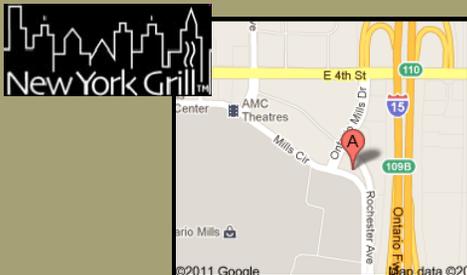
Meeting Preview...	pg.1
Local Businesses...	pg.2
Coming Attractions...	pg.3
More on PICVs...	pg.4
Student Activities...	pg.5
Partial Roster...	pg.6



## Meeting preview

### Meeting Location

Date: February 21, 2012  
 Location: New York Grill  
 Ontario, CA  
 Board Meeting: 5:00  
 Social Hour: 6:00-7:00  
 Dinner & Program: 7:00  
 Cost: \$35

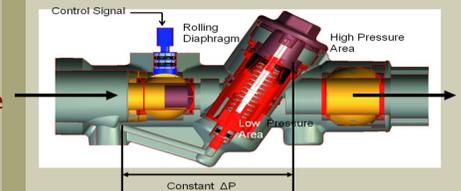


We look forward to seeing you again next meeting. New York Grill is located just outside of the Ontario Mills Mall just southwest of 4th Street and the 15 Freeway.

Please e-mail Adam at adam.stadnik@gmail.com to reserve your spot for the upcoming meeting.

New York Grill  
 950 Ontario Mills Drive  
 Ontario, CA 91764

Yesteryear was a much simpler time. Energy was cheap and for many decades the designers' choice for fluid control was the use of *pressure dependent manual balance valves*. Loads were considered to be static, controls were unsophisticated and constant volume pumping systems were the norm. Three-way valves were employed to ensure constant volume for either hot or chiller water systems. Proportional balance was the mantra and systems were designed to perform best at full load conditions. Excess flow was re-circulated via primary-secondary piping to protect the hot or cold water source and flows of 125 to 150% of design were common. Everyone was warm or cool as needed. Energy was cheap. Times were simple.



This month we hope to tell a different story. We are happy this month to have Kenneth R. Luther visit Tri-County to present on the inner workings and the benefits of installing pressure independent control valves in the hydronic systems that we design. Mr. Luther comes to us from Griswold Controls and is a friend to long-time Tri-County member David Hernandez of Dawson Company. This promises to be a great presentation chock full of lots of juicy engineering information. You won't want to miss out this month!

NOTE: Statements made in this publication are not the expressions of the Society or of the Tri-County chapter but may not be reproduced without special permission of the Tri-County chapter.



Tel (909) 596-6856  
Fax (909) 596-3255  
www.air-ex.com  
License #418759

**Mike Lynaugh**  
Sales Engineer  
m.lynaugh@air-ex.com

**Air-Ex**  
Air Conditioning, Inc.

157 Gentry St. • Pomona, CA 91767-2184  
THE AIR CONDITIONING EXPERTS

Serving you since 1982!

Solution Partner  
Siemens  
SMACNA  
BACnet  
Lynx



**Ray Faridnia**  
Account Executive  
Liebert Products & Services  
Southern California Sales Office

**Emerson Network Power**  
35 Parker  
Irvine, CA 92618

T 949 457 3874  
F 949 457 3885  
M 949 500 7744  
Ray.Faridnia@Emerson.com



**AIR CONDITIONING SPECIALTIES COMPANY**

**ROBERT MORSE**

(562) 694-8543  
(714) 738-7711  
850 East La Habra Blvd.

E-mail: [rmorse@acspecialties.com](mailto:rmorse@acspecialties.com)  
FAX (562) 697-6296  
La Habra, California 90631

**Air Treatment Corporation**

HVAC Manufacturers' Representative

957 Lawson Street  
City of Industry, CA 91748

(909) 869-7975  
OFFICE FAX (626) 965-3541  
www.airtreatment.com



**Vicki Rolofson**  
vrolofson@airtreatment.com

Direct: (760) 245-4730  
Cell: (818) 422-0680  
Fax: (760) 241-4106



**Lane Radermacher, CEM**  
District Sales Manager  
Southern California

**Belimo Americas**  
1049 Fortunato Loop  
Sparks, NV 89436  
Tel: 760-486-7678  
Fax: 866-699-8827  
lane.radermacher@us.belimo.com  
www.belimo.com



**Sales & Service**  
Manufacturers Representative

STATE LICENSE NUMBER 401293

(714) 897-1036 Office  
(714) 319-7417 Mobile  
(714) 894-7586 Fax  
Kevin.Trent@DBSales.net

**KEVIN TRENT**  
SALES ENGINEER

11582 MARKON DRIVE, GARDEN GROVE, CA. 92841  
WWW.DBSALES.NET



**Aaron Deusch**  
aaron@drymaxxair.com  
www.drymaxxair.com  
p: 818.290.3616  
c: 562.394.3540

**DRYMAXXAIR SOLUTIONS, LLC**

Southern California Humidity Specialist

AC Units • Gas • Driven  
Humidifiers • Cooling Towers • CRAC  
Units • Gas • Driven Heat Pumps • Total Humidity HVAC  
Systems • Coils • Indirect and direct evaporative cooling  
• Gas Fired Units • Warehouse A/C • Make-Up Air Units

*local*



*businesses*



**DAWSON CO.**  
YOUR FLUID TECHNOLOGY RESOURCE  
IN BUSINESS SINCE 1948  
WWW.DAWSONCO.COM

**DAVID HERNANDEZ, P.E.**  
VICE PRESIDENT  
ENGINEERING  
SERVICES

TEL. 626-797-9710  
CELL: 626-429-9306  
FAX: 626-798-4659  
EMAIL: [DHERNANDEZ@DAWSONCO.COM](mailto:DHERNANDEZ@DAWSONCO.COM)

1681 W SECOND ST.  
POMONA, CA 91766

PLEASE SUPPORT OUR BUSINESS CARD ADVERTISERS LOCATED HERE AND ELSEWHERE IN THIS PUBLICATION...

MAKE AN INVESTMENT IN OUR INDUSTRY'S FUTURE!



**ARROWHEAD MECHANICAL, INC.**  
**ARROWHEAD SHEET METAL**  
HEATING, AIR CONDITIONING & VENTILATING CONTRACTORS  
GENERAL SHEET METAL  
Contractor's Lic. No. 334422

**ROBERT GASTEL**

(909) 889-2813  
(909) 884-0174  
FAX (909) 884-4849

209 N. WATERMAN AVENUE  
P.O. BOX 8063  
SAN BERNARDINO, CA 92412

**AIR CONDITIONING SPECIALTIES COMPANY**



**ERICK DELGADO**  
[edelgado@acspecialties.com](mailto:edelgado@acspecialties.com)

(562) 694-8543  
(714) 738-7711  
850 East La Habra Blvd.  
www.acspecialties.com

FAX (562) 697-6296  
La Habra, California 90631

If you would like to place a business card ad in Super Heat, please contact Adam Stadnik via e-mail at [adam.stadnik@gmail.com](mailto:adam.stadnik@gmail.com)!



**Glenn Branson, Cell: (951) 283-5668**  
Commercial & Industrial Sales  
e-mail: [glenn@deltaqinc.com](mailto:glenn@deltaqinc.com)

**Delta-Q, Inc.**  
510 E. Jamie Avenue  
La Habra, CA 90631  
(714) 879-0622  
Fax (714) 879-0623

THANK YOU FOR YOUR SUPPORT!!!

# Coming attractions

What's in store for you for the next few months at Tri-County ASHRAE?

## Check it out!

### March 17th

STATE OF THE ECONOMY IN THE INLAND EMPIRE.

### April 15th

STUDENT NIGHT!

### May 15th

INSTALLATION DINNER.



## upcoming events

Don't miss out on the exciting events coming up in the meetings to come!  
Bring a buddy and enjoy the time with your friends and colleagues, and  
network within your industry!

# More on PICVs

As the cost of energy exploded, concern mounted about the cost and performance of hydronic systems. Designers quickly realized that energy savings could be realized by designing variable volume systems by utilizing 2-way control valves and riding the constant speed pump curve. *Pressure dependent manual balance valves* were still the norm. Variable volume systems were definitely an improvement but much more could still be done. Control systems continued to improve and the designer was soon given a new energy saving tool, the adjustable frequency drive (AFD). The designer could now use both variable volume and variable speed to match the load and realize even more savings. No longer were we chained to the concept of full load design. Appropriately, the piping systems became more complex to address the difficulty of getting the water to where it was needed without over-pumping and wasting energy. The flow to load relationship between the load, coil and the 2-way valves became the designers challenge. Unfortunately, AFDs gave the pumps a mind of their own. Even when loads were reduced, excessive head produced by pumps in lightly loaded zones resulted in overflow, and low system differential temperatures ( $\Delta T$ ).

While *pressure dependent manual balance valves* continued to rule the market, a new technology emerged that could subside the over pumping and low  $\Delta T$  issues plant operators were experiencing. The invention and application of *pressure dependent flow limiting valves* were employed to take excessive over-pumping out of the equation. No matter what the pump tried to do, the maximum any coil could be pumped was design flow. Two way valve piped systems began to do what they were designed to do...save pumping, chiller and cooling tower energy. Typical central plant energy savings approached 50% over 3-way valve controlled systems. Unfortunately, increasing energy costs never subsided. In addition, poor operation techniques, lack of maintenance, inadequate designs, and load profile and design changes, added to the escalating cost of operating systems. Although systems were drastically improved, manual balancing and flow limiting valves were still "*pressure dependent*", which meant not only did the room thermostat influence the flow through the coil, but so did all of the adjacent 2-way control valves and variable speed pumps. The fluid flow through the coil was still not 100% influenced by the only control that directly monitored the load, the room thermostat. A better way of controlling flow was needed.

Enter the third generation of flow control... the *Pressure Independent Control Valve* or the "*PICV*". The PICV, pictured on page 1, is two valves in one...a characterized temperature control valve (TCV) providing linear flow output proportional with valve stem position and a pressure regulator maintaining a constant differential pressure ( $\Delta P$ ) independent of the ball valve opening, providing infinitely variable  $C_v$ . At all positions of the TCV, the PIC-V will limit the flow to that value, no matter how the pump or other valves in the system are modulating. As long as the system pressure remains with the design criteria a constant flow within  $\pm 5\%$  is maintained. Constant flow is maintained as well as maximizing the discharge temperature off the coil. Over-pumping is eliminated, additional chillers are not turned on, and additional cooling towers are also avoided... energy savings blossom. An additional 25-50% in central energy plant operating costs can be expected over traditional two-way valve variable volume variable speed designed systems.

Now designers have the best of all worlds available...an accurate control valve that can provide the desired linear flow to load relationship at the coil and the ability to maintain a constant temperature output regardless of external pressure influences...pressure independence!



# *Student activities*

## **Tri-County's Jim Toda and Yung Lin Attend Cal Poly Pomona ASHRAE Meeting**

On February 9, Yung Lin and I met with the Cal Poly Pomona Student Branch. Faculty Branch advisor Professor Henry Xue also attended the meeting and spoke to the Branch members. The Branch is made up of nine members so far.

The Student Branch members are excited to participate in ASHRAE activities and events. They look forward to forming a team for the ASHRAE Student Design Competition next year. Cal Poly Pomona gives students credit for their Senior Project, when they participate in a Design Competition entry.

The Tri-County chapter sponsored the Student Branch meeting lunch, which was appreciated by the students. Tri-County members will be able to meet Student Branch members, at our annual Student Night in April.



**JIMTODA**

Student Branch Advisor

# 2011-2012 partial roster

## Officers

**President** **Jaime Lopez**  
RF MacDonald Company — 714-257-0900

**President-Elect** **Erick Delgado**  
Air Conditioning Specialties Co. — 714-738-7711

**Treasurer** **Yung Lin**  
SCE Food Service Technology Center — 626-812-7666

**Secretary** **Position Currently Open**  
Apply Within!

## Board of Governors

**Past-President** **Tim Hald**  
Barr Engineering, Inc. — 562-944-1722

**Adam Stadnik**  
SCE Field Engineering — 909-261-7632

**Richard Randall**  
DMG Corporation — 562-692-1277

## Committee Chairs

**Historian** **Jim Toda**  
*Conditioning Components* — 562-461-1372

**Resource Promotion** **Joe Sanders**  
*DES* — 951-310-3235

**Student Activities** **Mike Lo**  
*SCE Customer Energy Efficiency & Solar Division* — 626-633-3035

**Newsletter Editor** **Adam Stadnik**  
*SCE Field Engineering* — 909-261-7632

**Home Page Webmaster** **Kyle Landis**  
*SCE New Construction Services* — 626-261-0879

**Technology Transfer** **Jim Parker**  
*Carrier* — 714-985-5308

**Membership Promotion** **Kyle Landis**  
*SCE New Construction Services* — 626-261-0879



**Everyone in Tri-County is responsible for building a better tomorrow!**

## Tri-County Super Heat

13796 San Luis Rey Court  
Rancho Cucamonga, California 91739

CELEBRATING,

**20** PLUS YEARS  
1989-2010

TRI-COUNTY ASHRAE!

## PAST PRESIDENTS

1988-1989	SUKHDEV MATHAUDHU
1989-1990	SUKHDEV MATHAUDHU
1990-1991	JEFF LEONARD
1991-1992	DEL THOMAS
1992-1993	TONY PIERCE
1993-1994	GREG MORIN
1994-1995	TONY HENKEL
1995-1996	JOHN HAVILAND
1996-1997	JOEL CARTER
1997-1998	CHANDRACHINDE
1998-1999	JIM TODA
1999-2000	RICHARD MCLEOD
2000-2001	KERRY PARKER
2001-2002	DEBRACHAVIRA-SMITH
2002-2003	LUCASHYMAN
2003-2004	JOE SANDERS
2004-2005	BOB GASTEL
2005-2006	ART ANDRES
2006-2007	JIM PARKER
2007-2008	KYLE LANDIS
2008-2009	RICK CREED
2009-2010	ROBERT MORSE
2010-2011	TIM HALD

— journal of the tri-county chapter of the —

*American Society of Heating, Refrigerating, and Air Conditioning Engineers*

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.