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For ASHRAE news and society
headlines, please check:
ashrae.org/about/news

NOVEMBER MEETING

Tuesday, November 3, 2020 11:30 AM - 1:00 PM

Presentation: Air-Handling Systems for Hospitals

Speaker:

David Schurk, PE - Director of Business Development, Global
Plasma Solutions



TIME: 11:30am - 1:00pm

COST: Chapter Members/Non-Members

Meeting Cost: \$25/\$30, Students are free!

LOCATION:

Web Meeting

UPCOMING EVENTS

Speaker Biography



Air-handling units (AHU's) in hospitals provide a variety of functions that may include comfort conditioning, maintaining air quality, reducing airborne infections, odor control, and smoke ventilation, while directly contributing to the temperature, humidity, air movement, ventilation and filtration within these facilities. Additionally, they must operate as efficiently as possible to eliminate the burden of excessive energy costs which diminish a hospital's financial bottom line. The proper design, selection, installation, and operation of these significant system components is key to a HVAC system that contributes positively to the complex dynamics of patient wellbeing and outcome.

David Schurk, PE

Director of Business Development
Global Plasma Solutions

David serves as Director of Business Development for Global Plasma Solutions, headquartered in Charlotte NC (USA). In previous positions he worked for three of the world's largest HVAC manufacturers, including Carrier, Daikin, and Trane.

David is a Licensed Designer of Engineering Systems with over 38-years of experience in the design and analysis of heating, ventilating, and air-conditioning systems for a variety of market sectors, with a special focus on hospital/healthcare environmental control and indoor air quality.

David attended the Milwaukee School of Engineering and is a LEED-AP who has been involved in the conception, design, and selection of HVAC systems for a number of projects achieving LEED certified status. He is also an ASHRAE Distinguished Lecturer, a Certified Energy Manager (CEM), a Certified Demand Side Manager (CDSM), a Certified Water Efficiency Professional (CWEP), a Certified Sustainable Facilities Professional (SFP), a Certified Indoor Air Quality Manager (CIAQM), and is Health Care Constructor Certified (HCCC). He is active in the American Society for Health Care Engineering (ASHE) as Member and serving on the ASHE Editorial Advisory Board, the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) as Member and past Chapter President, the American College of Healthcare Executives (ACHE), the Association of Energy Engineers (AEE), and many other national and regional industry associations.

David has authored numerous technical articles for industry magazines and journals including ASHRAE, Medical Construction & Design, Healthcare Design, Engineered Systems, Heating-Piping & Air-Conditioning, and others. He is a featured presenter at national, international, and regional industry associations and events.

SoCal Chapter 90th Anniversary



SOUTHERN CALIFORNIA CHAPTER
TURNED 90 YEARS OLD

90th

ANNIVERSARY

OCTOBER 17TH, 1930

90 YEARS AGO, THE CHAPTER OF SOUTHERN
CALIFORNIA WAS INDUCTED

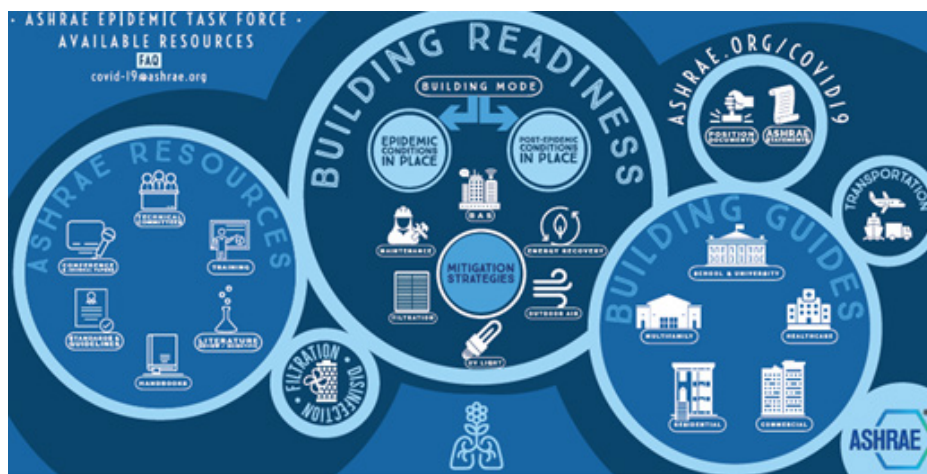
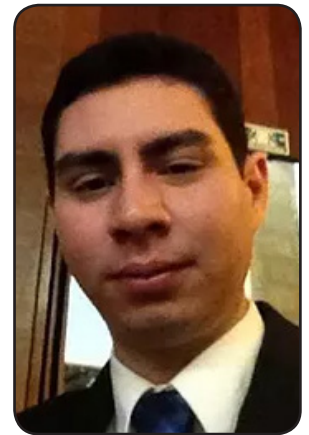


President's Message

Dear ASHRAE SoCal,

Thank you for attending October's virtual program on "Air Cleaning and Airborne Infectious Diseases". Our chapter's October Distinguished lecturer Dr. Marwa Zaatari's had over 90 participants in attendance. ASHRAE SoCal November's virtual Distinguished Lecturer program will be presented by David Schurke, P.E. on Air-Handling Systems for Hospitals.

I encourage you to read our SoCal chapter Fellow member Erin McConahey's P.E. October's ASHRAE Journal article on "Material Concerns for HVAC Products". Erin's timely article on building design with the well-being of occupants in mind is a great addition to our COVID-19 ASHRAE resources. ASHRAE SoCal is fortunate to have excellent HVAC industry leaders like Erin.



During these times, it is important to note ASHRAE's Public Policy Priorities:

- Support Sustainable Building Practices to Mitigate Climate Change.
- Promote Healthy Buildings and Reduce Indoor Environmental Risks.
- Advance Design and Construction of Resilient Buildings and Communities.
- Ensure the Orderly and Safe Phasedown of High-GWP HFC Refrigerants
- Support Adoption of the Latest Edition of ASHRAE's Energy Standards into Building Code.
- Strengthen the HVAC Workforce.

ASHRAE does not take a political party stance. While representing ASHRAE, please keep our organization's public policies in mind. The purpose of ASHRAE is to serve humanity by advancing HVAC&R and their allied fields.

ASHRAE SoCal is the original chapter in Region X. Our SoCal chapter was chartered on October 17, 1930. Happy belated birthday to SoCal ASHRAE! As we continue growing as a chapter, please carry on with promoting our organization's values, networking, and relationships. I continue to be proud being part of an amazing organization. And, I continue to be humbled by the leadership of our chapter members, chairs, and officers.

Proudly serving you,

Nick Rosner
2020-2021
ASHRAE SoCal President

President-Elect's Message



Hello again, I'm Barnabas Path, your ASHRAE SoCal President-Elect. And no, I am not a medical doctor, or ANY kind of doctor. But you don't need to be a doctor to understand the critical role played by air distribution in hospitals and other critical care facilities.

Our program this month is titled "Air Handling Systems for Hospitals". Our presenter, David Schurk, is an ASHRAE Distinguished Lecturer and a Licensed Designer of Engineering Systems with over 38-years of experience in the design and analysis of HVAC systems for a variety of market sectors, with a special focus on hospital/healthcare environmental control and indoor air quality. David has multiple certifications in energy & healthcare, serves on the ASHE Editorial Advisory Board, and has authored numerous technical articles for industry magazines and journals.

Please join us Tuesday, November 3rd @ 11:30 AM for another live ASHRAE SoCal Zoom presentation.



Mike's Monthly Maintenance

by Mike Gallagher, MGallagher@wasocal.com

6 Ways To Avoid Pipe Erosion (And Leaks!)

One aspect of getting old is the way that your number of disasters has expanded over time. It was suggested that I have seen enough of those having to do with pipe erosion to consider doing a Sol Air column with that as a topic. I thank every one of my small handful of dedicated readers for their input, and this column is a result.

Pipe erosion for the sake of this article is the physical or chemical wearing away of piping material. It typically manifests itself in areas of turbulent flow, though high enough velocity, a molecular-level attack (chemical or otherwise) or debris in the water can also erode piping. I'm not going to talk about pipe sizing; if you can read a chart, you can stay within recommended velocities. These 6 scenarios are situations that I've lived which occurred in systems where the pipe was properly sized.

1.) **Modulating valve close coupled to a downstream elbow.** As you can imagine, the single biggest cause of erosion that I've seen over the years has related to turbulent flow. What would you assume regarding turbulent flow immediately downstream of a modulating valve...such as a chilled water control valve? As you would imagine, the flow is very turbulent immediately downstream of a partially closed valve. How many pipe diameters downstream of the valve can you safely locate an elbow? There is no definitive agreement on that, but I can tell you from experience that if you have 2 pipe diameters or less, you are begging for a hole to appear in the elbow within the next several years, and I would make every effort to get at least 4-5 pipe diameters clearance. Yes, I've seen those holes, and we even cut apart an elbow from a

chilled water system once to look at it from within the pipe. Classic erosion from the last half of the outer bend, extending a small distance into the next piece of pipe. The other time I've seen this scenario is with a head pressure "throttle" valve used to control condenser water flow before it entered a screw chiller. The erosion completely wore through the pipe.

2.) **At the pump discharge.** Pumps virtually always have a discharge connection size that is smaller than your desired pipe size. The reasons relate to the outlet condition that the pump manufacturer needs to maximize pump efficiency. You should expand to full pipe size immediately, and do so in a way that will permit a fair amount of straight pipe off the pump discharge (due again to the turbulence involved in the abrupt expansion). I've seen this mangled a few different ways; one goof was to NOT expand right way, and instead run roughly 12 pipe diameters of pipe that matched the discharge size before expanding to full pipe size. The derate of the pump/system curve/performance was amazing. Think of it as being something like the AMCA method for calculating system effect in a fan system (though not exactly the same, since air is compressible and water is not). When we replaced the roughly 2-3' of small pipe on the discharge with a bell fitting and correctly sized pipe, the measured flow went up over 20%...and it was clear in looking at the removed, small pipe that velocity erosion was taking place (though no leak had occurred yet).

3.) **Where copper pipe meets steel pipe (chapter 1).** While nobility was tossed out in most of the world over the past couple of centuries, it

Mike's Monthly Maintenance (cont...)

continues in metallurgy. A more noble metal will cause electrolysis when in contact with a less noble metal (basic chemistry; anode vs. cathode), so where copper or brass meets steel there is danger of corrosion due to electrolysis. Of course, it isn't quite that simple. Coil manufacturers, for example, have attached copper tubing directly to steel headers for over 100 years without problems. That is primarily because the mass of the copper tube at the point of connection is so much less than the mass of the steel pipe. However, when two water pipes meet, or a copper pipe is connected to a steel cooling tower, the masses are similar enough at the point of connection that corrosion between copper or brass and steel will take place without some sort of a dielectric connection. There are many types of dielectric connections available today, and all work well if properly installed. Some are more prone to eventual leaking than others, so I have my preferences...using dielectric nipples whenever possible, for example...but all of the dielectric products do a good job of stopping corrosion due to dissimilar metals.

4.) Where copper pipe meets steel pipe (chapter 2). Of course you would typically use a dielectric connection of some sort, to prevent corrosion on the less noble metal at the point of connection, but that is not what I'm talking about here. This set of problems comes about either when water velocities within the copper piping (especially at fittings) causes some mechanical copper erosion; or when a corrosive liquid is passing through the copper piping, causing surface copper to be detached from the copper pipe. I've seen both.

4a.) In the first case, velocities a *lot* lower than the "traditional" 10 ft/sec maximum can cause at least minor mechanical erosion in copper fittings, particularly when the fittings were installed in locations that encourage turbulence. Some *minor* erosion is not usually a big deal in a fully copper piping system. *But the rules are different if the piping system is a mix of copper and steel, because if the small amounts of copper that peel off the copper fittings are still free in the water when the water flow meets steel piping, the copper will want to "plate out" on the steel.* Once that happens, cancer has set in.

The copper will remain in place and corrode straight through the steel pipe. Free copper in the water of a piping system that includes steel pipe is bad...very, very bad.

4b.) Corrosive liquids. Let me start by pointing out that there is a reason why chemical treatment for cooling towers is piped in PVC. Most scale inhibitor mixes used in Southern California have deliberately been mixed to be on the acid side of the scale (a pH of 2 – 3 is common) to help counter our tendency toward alkaline water. I took over service for an installation where the chemical treatment was piped in copper, rather than PVC, to a cooling tower inlet header. The chemicals (not turbulence or fluid velocity) stripped copper from the piping and it deposited on the steel. The copper was actually bright when we cut the leaking steel pipe apart less than 4 years after installation. The inside of the pipe looked like a whole bunch of reddish Iron Pyrite (fool's gold) in a stream bed. In this case, the fool was the installer.

5.) Debris in the water system. I've only seen this once, and it was in a condenser water system for one of the 20+ story west Wilshire high rises. Water treatment had been mediocre over the 30-ish years of the building's life, and the steel condenser water risers (which ran from the towers on the roof to the chillers in the basement, and also served some after hours equipment on the floors) were pretty rusty. This building was built just before the era of having a closed condenser water loop for tenant AC equipment, so we used some pretty good basket strainers at each floor to keep from plugging up the computer room AC equipment and occasional water source heat pumps with the rust flaky condenser water. I know about the debris in the system because of our regular cleaning of the basket strainers. At some point after 30 years, holes started to appear at elbows on the roof. As you might expect, part of this was simple corrosion. But after looking at the interior of the replaced piping, we also could see clear signs of debris erosion...almost like sand blasting. That is the only time that I've seen that from rust flakes, but it was interesting, and I'm sure that it has happened elsewhere.

Mike's Monthly Maintenance (cont...)

6.) **A note about air entrainment.** We tend to be sensitive to air entrainment in a pumped water system for a variety of reasons. Air (or at least the oxygen in air) promotes corrosion. Air can also dissolve into the water, promoting cavitation at the pump. Dissolved air can also be released where there is a sudden drop in pressure, and turbulence at a pipe fitting can be one of those places. Regardless, from what I have heard, seen, and read, corrosion at locations of turbulent flow appears to be worse the more air that is present. I'm honestly not certain how much of that is related to the mechanical aspects of the air's arrival, vs. how much is due to the greater presence of oxygen once the corrosion has already started. Regardless, this is just one more reason to control air in your piping systems.

Piping erosion is real. I don't see an example every year, but I've seen several in my life. The common denominator is the time, expense and headache associated with repairing the leak...and hopefully also addressing the root cause(s).

As always, I look forward to hearing your thoughts.
mgallagher@wasocal.com

ASHRAE Scholarships



Through its scholarships, ASHRAE seeks to motivate students and prospective students worldwide to pursue an engineering or technology career in the HVAC&R field, part of the science, technology, engineering and mathematics (STEM) industry. The Society's Scholarship Program also serves the public interest by aiding in the education of men and women to become qualified to practice as engineers in HVAC&R.

Over the course of 30 years ASHRAE has awarded over \$2.25 million to 400+ deserving students.

For more details, visit:

<https://www.ashrae.org/communities/student-zone/scholarships-and-grants/scholarship-program>

Passing of a HVAC Giant



Professor Rod Keif passed away on August 11, 2020 in San Luis Obispo. He spent the majority of his 94 years, being an instrumental part of the HVAC & R industry here on the west coast, not mention his many students who have found their way east, all of him fondly remember their time with him at Cal Poly. For those fortunate enough to have under his tutelage, his influence not only academically, but also in life, will remain indelibly printed in all of their successes.

Rod was a major factor in creating a fraternity of diversity at Cal Poly from 1960 to 1988 when he retired. He taught fundamentals of heat transfer, fundamentals of HVAC, plumbing design, heating system design and refrigeration system design. He was an advisor for many senior projects. Rod was the advisor for the ASHRAE Student Branch, along with being a long-time chapter member of So Cal chapter.

Rod's family has started a scholarship at Cal Poly in his memory. Information on gifting to the scholarship fund can be found on line at <https://me.calpoly.edu/keif-scholarship>.

Clay Lampman
Chapter Historian

ASHRAE SoCal Chapter Research Promotion

Corporation and Individual tax deductible **contributions helped ASHRAE fund the following Research**

| IDENTIFIER | TC/TG | COST | RESEARCH TITLE OR SUBJECT | CONTRACTOR |
|------------|-------|---------|---|-------------------------------------|
| 1711-RP | 1.04 | 160,000 | Advanced Sequences of Operation for HVAC Systems – Phase II Central Plants and Hydronic Systems | TAYLOR ENGINEERING - Alameda, CA |
| 1778-RP | 5.1 | 198,940 | Testing and Evaluation of Ozone Removal Air Cleaning Devices for Improving IAQ | FRONTIER ENERGY INC - San Ramon, CA |
| 1801-RP | 1.05 | 105,000 | Standardizing and Utilizing ASHRAE Online BIM Data Exchange Protocols | Hitchcock Consulting - Lincoln, CA |

Support Future Research in
Building Science & Air Conditioning !

For online contributions go to www.ashrae.org/contribute



Online Donation to ASHRAE Research Promotion

Resource Promotion Chair for SoCal Chapter

100% of this money will go to research, meaning not only you are helping creating jobs for some people (those who actually do the research projects) you are also helping advancement of our industry and helping green engineers such as myself learn faster and have better, more reliable resources. And for that we thank you!

You can make your contribution by:

- Going online and following instructions below (will take 2 mins !)
- Call me and give me your information and I will do it for you
- Send a check directly to headquarter
- Send a check to me
- Ask me to come pick your check up
- Or anything else you are comfortable with, be creative!

Thank you all and see you soon.

Online Contribution

Go the <https://xp20.ashrae.org/secure/researchpromotion/rp.html>

1. In the first rectangle put your contribution amount and check ASHRAE Research circle.
2. Check the box for endowed support
3. In existing fund name copy : S California Chapter
4. If you want to support scholarship please fill the scholarship amount and pick general
5. Click on personal contribution
6. Under contribution information field in red are required, fill out your information
7. SUBMIT and wait for your name to pop up a san honor roll investor !

Invest in ASHRAE and Help Shape our Future

I would like to financially support ASHRAE's mission, programs, and member services indicated below; (indicate the amount you wish to contribute in U.S. dollars to any or all resources below)

U.S.\$ ☒ ASHRAE Research ☐ ASHRAE Research Canada
U.S.\$ ☐ ASHRAE Learning Institute and educational programs
U.S.\$ ☐ Endowed Research via ASHRAE Foundation.

☒ By checking the box, I indicate that I understand that these are endowed funds and permanently restricted for the support of ASHRAE Research.

Existing Fund Name (if known):
[Click here to see existing endowments](#)

U.S.\$ ☐ ASHRAE Scholarships (endowed scholarship support)
(Select One)
If "Other" is selected, please enter the name of the Scholarship

U.S.\$ ☐ ASHRAE General Fund
U.S.\$ ☐ Young Engineers in ASHRAE (YEA) Support
U.S.\$ ☐ Total contribution to be charged to credit card

Please check one:
☒ Personal Contribution ☐ Company Contribution ☐ Chapter Contribution
(Honor Roll level contributions listed in ASHRAE's October Journal Issue start at \$100.00 for individuals and \$250.00 for companies.)

Payment Method (Note - all fields are required)

Charge my gift to:
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Manny Castro
mcthread1@gmail.com

REMEMBER: All donations to ASHRAE are tax-deductable!

Membership Corner



Membership Promotion

To become a member of the Southern California Chapter you must first be a member of Society (for more info, please visit www.ashrae.org/membership/join). If you are currently a member of Society and wish to join the Chapter, you can synchronize your renewal dates by paying pro-rated Chapter dues. Society membership is \$205 for Associates and Members, \$21/\$79/\$105 (Fee per year at a 3 year introduction) for Affiliates, and \$21 for students; Chapter membership is \$60 for Affiliates, Associates and Members and \$10 for students. Student Transfer membership allows you to maintain a reduced membership for the two years following graduation.

*Rate changes every year for the first 3 years.

If you have any questions about your membership, please don't hesitate to contact **Nelson Echeverry** at nelson@dfda1.com

HAVE YOU PAID YOUR MEMBERSHIP DUES?

Even though you have paid your Society membership dues, don't forget to pay your Chapter dues. Chapter dues go directly to the SoCal Chapter and are greatly appreciated. If you haven't paid your Chapter dues yet, please be sure to stop by reception at the next chapter meeting and we can accept your dues directly. Thank You!

SmartStart

Are you a Student Member that recently graduated? Do you know someone that is? First off, welcome to the real world! Secondly, you should all take advantage of the SmartStart Program! SmartStart is a 3-year program that allows Student Members to transfer to Associate grade membership at a fraction of the cost:

First Year: \$21

Second Year: \$79

Third Year: \$105

Join within 6 months of your graduation date to take advantage of the SmartStart program now!

(https://fs12.formsite.com/ashrae/form581146616/secure_index.html)

Announcements



525 S. Hewitt St., Los Angeles, California 90013 | www.la-bbc.com

7th Annual LABBC Innovation Awards: Collaborating Organization Marketing Toolkit

CALL FOR SUBMISSIONS – COMMUNICATIONS OUTREACH

Please utilize the below content in communications promoting the Call for Submissions (newsletters, e-blasts, etc.). When applicable, you may also attach the "Call for Submissions" Banner (included below & on the dashboard).

- **Event Title:** 7th Annual LABBC Innovation Awards
- **Submission Deadline:** January 15th, 2021
- **Awards Date:** March 24th 2021 at 12pm PDT via Zoom
- **Description:**

The City's most prestigious sustainability award, the LABBC Innovation Awards, recognize LA's Best Buildings for their leadership and contributions toward citywide sustainability efforts.

This year, the Awards celebrate LABBC Partners who have demonstrated exceptional ingenuity navigating the unprecedented challenges posed by COVID-19, while remaining committed to ESG goals.

Anyone can submit by acknowledging interest in LABBC Partner enrollment, and it's quick & easy – 5 min. estimated time to fill out the questionnaire. Submit your project today! [Link to: <http://bit.ly/awards-labbc>]

- **Categories:**
 - [Energy Performance](#)
 - [Water Performance](#)
 - [Affordable Multifamily](#)
 - [Industry Leadership](#)
 - [Hometown Hero \(Small-Medium Business\)](#)
 -
- **Winners Receive:**
 - Market visibility to 30,000+ professionals
 - Special recognition from the Mayor and the US DOE
 - Customized [case studies](#) & [videos](#) (and trophies!)

- **Image/Visuals:** [Banner](#)



LOS ANGELES AREA
CHAMBER OF COMMERCE



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solair.editor@gmail.com

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and the Chapter Website!**

Job Postings: \$150 per half page

Business Cards: \$150 per year / \$50 per month

solair.editor@gmail.com

2020-2021 Board of Governors and Chairs

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