January 2021
Volume 65
No. 5

Sol*Air

Newsletter for the Southern California Chapter of ASHRAE

THE FEATURES

TECHNICAL ACTIVITIES

GRASSROOTS COMMITTEE

AND MORE...

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

JANUARY MEETING

Tuesday, January 5, 2021 11:30 AM - 1:00 PM

Presentation: Building Automation System Master Planning - Take Control of Your Facilities Future

Speaker:
Jim Vallort - Commissioning Program Manager - Mortenson

REGISTER

TIME: 11:30am - 1:00pm

COST: Chapter Members/Non-Members
Meeting Cost: $25/$30, Students are free!

LOCATION:
Web Meeting

UPCOMING EVENTS

Follow us on social media!
https://www.facebook.com/ASHRAESOCAL/
https://www.linkedin.com/in/ashraesocal/

Speaker Biography

Jim Vallort

Commissioning Program Manager - Mortenson

Jim Vallort has spent his career focusing on energy: ranging from measuring energy usage, optimizing the systems, integrating automation to control energy and the impact of commissioning on energy consumption. Jim brings a unique perspective having been on the engineer of record, 3rd party commissioning and contracting sides of project delivery.

Jim is the Commissioning Program Manager for Mortenson, a Top 20 US Contractor. Jim also served as an ASHRAE Society Vice President for the 2015-2016 Board of Directors. He currently serves as a member of Technical Committee (TC) 7.9, Building Commissioning and Guideline Project Committee 1.6, Commissioning of Data Centers . Jim previously served on the Board as a director-at-large in 2005-08 and as Region VI director and Regional Chair in 2001-04.

Jim has over 20 publications and numerous presentations under his belt on topics ranging from Energy Efficiency, Automation and Commissioning to Underfloor Air Distribution. He has been an invited speaker at multiple fortune 500 companies educating their staff on building automation, energy efficiency, existing building commissioning and new construction commissioning. He brings a unique perspective on the constructability and real world aspects of our industry having been a union pipefitter, spent years in the field commissioning projects, combined with the experience as a mechanical designer, building automation designer and energy modeler.

Jim's greatest joy at work is teaching and mentoring others on the mix of art and science that is required to solve today's challenges in the engineering community. Vallort is the recipient of the ASHRAE Exceptional Service Award, ASHRAE Distinguished Service Award and an Excellence in Engineering Award from the ASHRAE Illinois Chapter in 1998.

Jim Vallort plays a large role in organizing one of ASHRAE's largest, best-attended, and most profitable Conferences held in Chicago every three years. Vallort served as advisor to the most recent 2015 ASHRAE Winter Conference; co-chaired the Chicago meetings in 2012, 2006, 2003 and 1999; and served as chair of the ASHRAE Centennial Meeting in 1993; he organized the Technical Tours and was on the Entertainment Committee for the 2009 Chicago Winter Conference. His earlier service includes Technology Council, the Planning Committee, the Standards Advisory Committee and a presidential ad hoc Committee on Certification. He also served as chair of the CIBSE/ASHRAE 2000 Joint Conference Steering Committee, the Member Council ad hoc Committee on Young Engineers (YEA) and the Society Program Committee and vice chair of the CIBSE/ASHRAE 2003 Joint Conference Steering Committee. He was president of the Illinois Chapter in 1999-2000.

2020-2021 Program Schedule

2020-2021 Meeting Programs

Nov 3, 2020 "Air Handling Systems for Hospitals" – Davis Schurk

Dec 1, 2020 "ASHRAE's Response to the Covid Pandemic" - Charles E. Gulledge III

Jan 5, 2021 "Building Automation System Master Planning - Take Control of Your Facility's Future" - Jim Vallort

Feb 2, 2021 "Upgrading Existing Chilled Water Systems" – Panel Discussion moderated by Mike Gallagher

Mar 2, 2021 "Health as a Building Performance Metric" – Stephanie Taylor, M.D., M. Arch, CIC

Apr 6, 2021 "What Should Drive the Sustainability Bus - Indoor Environmental Quality or Energy?" – Robert Dean

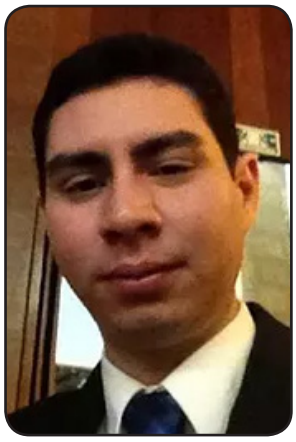
May 4, 2021 "Student Designs & Scholarship Awards Presentations"

Jun 15, 2021 "Installation of Board of Governors & Banquet"

ASHRAE Southern California Chapter

CLICK HERE

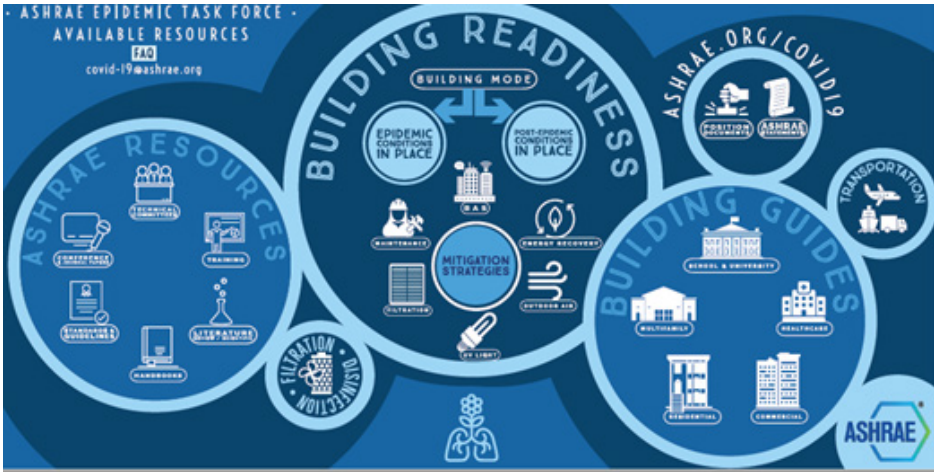
President's Message



Dear ASHRAE SoCal,

Happy new year! I hope you spent some time recharging virtually with friends and family. 2020 will go down in the history books as a time of uncertainty, crisis, and resiliency. Let's continue focused on the year ahead of us. We have managed to adapt and change and have not forgotten our positive momentum.

It was great hosting our ASHRAE Society President Chuck E. Gulledge III last month. This month's meeting, our virtual session will be on Automation Master Planning by Distinguished Lecturer Jim Vallort. Additionally, we plan to host an RP dedicated session on Reducing Green Gas Emissions in Gas-Fired Buildings by Steve McCool.



The ASHRAE Virtual conference registration is open (ashrae.org/2021winter). More than 35 technical sessions will be presented live, there will be ASHRAE updates from our organization's leaders, virtual round table discussions are planned and recognition of ASHRAE's most prestigious awards will be announced at this event. Also, I will be a technical session speaker presenting on VFDs and harmonics at the Winter Virtual Conference. I would be excited to have all attend.

2021 will be a different year for us all. I'm looking forward to hearing news about reopening, a return to in-person events, and a successful vaccination plan rollout. In the interim, please take care of yourselves, each other, and stay motivated.

Proudly serving you,

Nick Rosner
2020-2021
ASHRAE SoCal President

President-Elect's Message

Each day seems to bring more bad news about COVID – a new strain, more virulent, infection counts climbing – that smothers any other news story. Today, mere months from the first smattering of COVID stories almost everyone knows someone, or groups of "someone's", that has COVID. Some may personally know someone who has passed from COVID. It's as if we have lost control of our carefully planned world, one for which we have sacrificed years and tens of thousands of dollars on education; we've saved, invested in a home for the future, started families, all to now have our apple cart upended.

How ironic then that our January program is to be on the subject of Controls, and to be more precise, "Master Planning". How ironic indeed.

But then again, that is what engineers do, isn't it? Why we chose a profession that is at it's root, focused on problem solving. Nothing makes an engineer more happy, more secure in their role in life than to be presented with a problem that someone needs solved. It matters not that Aunt Judy can't understand why her fryer keeps stalling out just before the meat is done, or your brother wants to figure out just exactly how to game the stock market, or that your significant other is complaining about the heat in one of your rooms. We rise to the occasion because it is our calling.

As long as we are working on a problem, we are in control.

Our January topic is Automation Master Planning, and our speaker is Jim Vallort, and ASHRAE Fellow and ASHRAE Distinguished Lecturer. He has over 20 publications and numerous presentations under his belt on topics ranging from Energy Efficiency, Automation and Commissioning to Underfloor Air Distribution. Jim's presentation will explore ways a Building Automation System Master Plan can prepare for future technological advancements and enable today's facility managers to harness the power of their building systems.

After all, it's all about the control, isn't it?

Please join us Tuesday, January 5 @ 11:30 AM for another of our Virtual Zoom presentations. We will have raffle prizes, a chance to mingle with your fellow "problem solvers" in breakout rooms, and another thought-provoking program presentation.

I hope to "see" you next Tuesday. Until then, let's be safe out there!

Mike's Monthly Maintenance

by Mike Gallagher, MGallagher@wasocal.com

Nine HVAC Changes This Century

This seems like a good month to reflect on changes in our industry this century. A lot has changed since Y2K. Let's take a short stroll down memory lane.

1.) At the turn of the century, the main concern with refrigerants was ozone depletion resulting from a refrigerant leak or discharge. Global warming was another battle, looming off in the distance. People who understood how things really worked recognized that auto air conditioning was the primary source of leaking refrigerant, with residential AC in second place, but that commercial building AC systems also needed to improve refrigerant handling practices (which had been under weigh for more than a decade at that point). R22 was the predominant commercial refrigerant, since CFC's had given way to HCFC's. That seems such a long time ago…

2.) Scroll vs. reciprocating compressors. Pretty much every existing compressor under 30 tons was still a recip, though scrolls were quickly overtaking recips in new equipment. Scrolls are much more reliable, for a host of reasons. I'd guesstimate our compressor replacements today at maybe 1/3 as many as when everything was recip. Definitely a technology improvement.

3.) Economizer controls. Back in the day, most economizers were dry bulb controlled, mostly due to the poor reliability of enthalpy sensors. Today, the sensors are better and the benefits of enthalpy controls are better understood. The flip side is that economizers are more complicated and far more difficult to operationally test in the field. It is probably no coincidence that the percentage of working economizers in the field appears to be as low as it has always been…variously estimated at no more than 25-40% in proper operation.

4.) Variable speed drives (VFD's) were expensive and therefore only used selectively at the turn of the century. Today they have become a relatively inexpensive commodity, so they are being used for almost everything…and what is simply too small for a VFD is moving to an ECM motor. VFD's are even being used when there is no rational way to justify the extra complexity and controls, simply because VFD's are so ubiquitous that no one questions their use. I'm still waiting to see how the VFD vs. ECM choices play out, but it is a different world from a fan or pump control perspective than it was 20 years ago.

5.) Everything is digital. Data to collect & analyze, trends to record, alarms for anything you can imagine. Electronic expansion valves rather than thermal expansion valves. Ability to segment operation by individual temperature zone, and tenant bill by zone for over-standard operation. Front end dashboard and overlay systems to bring various proprietary control systems to a common view and global command point. In our lives as a whole, the digital revolution has probably been the single biggest development, but in HVAC I'd put it in a tie with its step child, later in this list.

6.) Micro channel vs. tube & fin air cooled condenser coils. Micro channel has some pro's; it weighs less; it holds less refrigerant (which also further reduces weight); and it is cheaper. It also has con's. Refrigerant charge is so small and precise that getting a proper charge in any sort of split

Mike's Monthly Maintenance (cont...)

system if start up occurs during cold weather is almost impossible. At high temperature (think over 100 F) operation, if there is any slight amount of over charge or the coil is dirty, the unit will trip on high pressure. Even at the proper charge with a clean coil, it will trip on high pressure during peak Palm Springs temperatures (115F +). You end up by default with a summer charge and a winter charge in severe climate areas, and have to adjust twice per year. Micro channel coils are also essentially non-repairable, so they come in (expensive) segments that we simply replace when they leak.

7.) Chemical treatment. The industry's understanding of biologicals in both open and closed loops has improved. I almost never see a 2 barrel system (scale inhibitor and biocide) serving a new open system any more; typically there are at least 3 barrels, because two biocides (chlorine and bromine) are alternated, so the critters in the water don't build an immunity. Just as important, the role of using a biocide in a closed loop is better understood; anaerobic bacteria can do a lot of harm if left untreated. All of this was known 20 years ago, but we've gotten more religion in this area due to problem projects. The other thing that has changed dramatically is the desire by certain water districts to use recycled water in condenser water systems. DO NOT approach one of these projects without thoroughly researching the water treatment requirements. They are significant.

8.) Oil-free and magnetic bearing compressors. I remember laughing at the concept in 1999. What a change a couple of decades can make! There are a lot of pro's…no oil management issues, quiet compressors, and less maintenance fit on most of the lists. There is one big con. Finding a refrigerant leak, or doing any sort of leak check, for a system that uses oil is vastly simplified by the presence of escaped oil at any leak spot. Oil, or at least the dust that builds up where oil is present, is easy to see. Oil-less systems…especially air cooled oil-less systems… are a real problem if you are trying to perform a conscientious leak check. Air cooled equipment is outdoors, so a little bit of wind (it doesn't take much) nullifies an electronic leak detector. Since there is no oil, there is nothing to see. There are options to conduct a proper leak check, but they are all expensive, so in any sort of competitive bid situation, the low bidder does nothing more than drive by and wave. Sort of like the air balance tech who does the work from his kitchen table.

9.) And finally, the winner in the "My, how things have changed" sweepstakes: VRF (Variable Refrigerant Flow) systems. Unless you were fully up to speed on built-up DX systems before VRF, it is hard to understand just how revolutionary this technology is. Just getting the oil back to the compressor is amazing, what with the intense level of monitoring and control adjustments required to continuously carry out that task. I think of this technology as the step child of the digital world, since it would not be possible without digital control. The move toward all electric heating is yet another push toward VRF, since the ability to overspeed compressors in the heating mode gives VRF a lot of heating advantages. There are challenges to overcome. As with most built up DX, there is a relatively large amount of refrigerant in the systems; the architectural tendency to bunch a lot of refrigerant piping in chases between floors is creating future problems (fixing a leak in a chase is going to be difficult); getting our technicians adequately trained is time consuming and expensive; and properly integrating VRF control systems with today's whole building systems is a very difficult job. Personally, as a contractor, I love VRF. We get to charge 15-20% more per ton for the same net result, and anyone considering VRF is told up front that it is more expensive, so we seldom have budget shocks later on in the process.

I'm sure you have some worthy HVAC changes over the past 2 decades that I have forgotten to mention. Drop me an email! As always, I appreciate your thoughts.

As always, I appreciate your input.
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

ASHRAE Member Provides Comment During California Hearing on HFCs

On December 10, Colin Laisure-Pool, ASHRAE member and Government Affairs Committee Regional Vice Chair for Region X, provided verbal comments at the California Air Resources Board public hearing for a regulatory proposal regarding Prohibitions on the Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosols-Propellants and Foam End-Uses. Hydrofluorocarbons (HFCs) are a class of highly potent greenhouse gases, and reducing these emissions is required by California Senate Bill 1383, which was signed into law in 2016. Mr. Laisure-Pool's comments supported the proposed phasedown of HFCs, but also requested that the state of California update building codes with the latest ASHRAE refrigerant safety standards. These comments reiterated letters previously sent by 2020-21 ASHRAE President Charles E. Gulledge III, P.E. in August of this year to both the California Air Resources Board and the Office of the State Fire Marshal, requesting that ASHRAE Standards 15 – 2019 and 34 – 2019 be incorporated into state building codes concurrently with this regulation. More information on the regulatory proposal can be found here.

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:

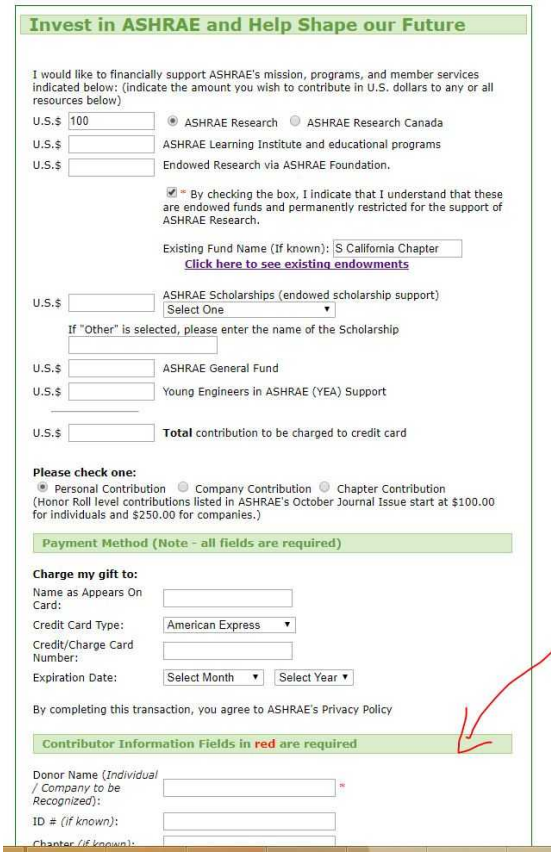
- Going online and following instructions below (will take 2 mins !)
- Call me and give me your information and I will do it for you
- Send a check directly to headquarter
- Send a check to me
- Ask me to come pick your check up
- Or anything else you are comfortable with, be creative!

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.$ 100 — 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): S California Chapter

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:

Name as Appears On Card:

Credit Card Type: American Express

Credit/Charge Card Number:

Expiration Date: Select Month Select Year

By completing this transaction, you agree to ASHRAE's Privacy Policy

Contributor Information Fields in red are required

Donor Name (*Individual / Company to be Recognized*): *

ID # (*if known*):

Chapter (*if known*):

Manny Castro
mcthreedot1@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)

Better Buildings CHALLENGE
U.S. DEPARTMENT OF ENERGY
LOS ANGELES

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:** Banne

LACI

LOS ANGELES AREA CHAMBER OF COMMERCE

LA DWP

Sol*Air Supporters

2020-2021 Board of Governors and Chairs

Sol*Air is published by the Southern California Chapter of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Los Angeles. *Statements made in this publication are not expressions of the Society or of the Chapter and should not be reproduced without special permission from the Chapter.*

2020-2021 ASHRAE Southern California Board - Officers, Directors, and Chair		
OFFICERS		
Past President	Ricson Chude	Ricson.Chude@sce.com
President	Nick Rosner	nicksrosner@eaton.com
President-Elect	Barnabas Path	bpath@laair.net
Treasurer	Sierra Spitulski	sierra.spitulski@p2sinc.com
Secretary	Roman Verba	romanverba@gmail.com
DIRECTORS AND CHAIRS		
Director of Membership and Retention	Nelson Echeverry	nelson@dfda1.com
Membership Promotion	Nelson Echeverry	nelson@dfda1.com
Resource Promotion	Manny Castro	mcthreedot1@gmail.com
Reception Chair		
Raffle Chair	Jeff Atlas	Jeff.Atlas@raypak.com
Director of Student Activities, YEA and Historian	Carlos Ruiz	carlos.ruiz@hendersonengineers.com
Student Activities Chair	Meghan Quinn	mquinn@cannondesign.com
Young Engineers in ASHRAE (YEA) Chair	Matt Sittel	Matt.Sittel@RFMacDonald.com
Chapter Historian / Scholarship Co-Chair	Clay Lampman	cala_eng@earthlink.net
Scholarship Co-Chair	Jay Madden	Jay.Madden@sce.com
Director of Public Relations & Correspondance	Eric Melendez	eric@budlong.com
Women in ASHRAE	Sierra Spitulski	sierra.spitulski@p2sinc.com
Newsletter Editor	Kevin Chan	kevin.chan@sce.com
Chapter Website & Communciations Chair	Karine LeBlanc	karine@rezine.net
Director of Chapter Technology Transfer & Sustainability	Roman Verba	romanverba@gmail.com
CTTC Chair	Elyse Johnson	elyse.johnson@ifactor.com
Government Affairs Co-Chair	Rafi Karim	rkarim@aeieng.com
Government Affairs Co-Chair	Andrew Clark	Andrew.Clark@BuroHappold.com
Refrigeration Chair		
Sustainability Chair	Marcos Avila	Marcos.avila@hendersonengineers.com
STANDING COMMITEES AND CHAIR		
Scholarship Investment Fund/Audit/Awards	Phil Trafton	pmtrafton@dfda1.com
PAOE Chair	Kristen Cole	kristenkcole14@gmail.com
Investment Fund Assistant Chair	Ishtiaq Chisti	ishtiaq.chisti@gmail.com
Golf Tournament Co-Chair	Joey Jiron	joeyjiron@aol.com
Golf Tournament Co-Chair	Sophie Ratkovich	sophratko@gmail.com

Southern California Chapter of ASHRAE – P.O. Box 80133 – San Marino, CA 91118

ASHRAE Southern California Chapter