

Issue No. 11

February 2018

# *The ASPE* OC PRESS



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# **PRESIDENT'S MESSAGE**

*By Chris MacKnight*

Hello All:

Happy February. Our Technical Meeting this month is where the topic is Hot Water Re-circulation presented by Dr. Saum Nour from Absolute Consulting Engineers and Eric Decker CPD. Congratulations to Eric on passing the CPD exam.

ASPE National is looking for help in three areas.

1. Revisions to PEDH Volume 2. Saum Nour and I have volunteered to help update a couple of the chapters.
2. ASPE National Board of Directors nominating committee. This is

for help reviewing the nominations.

I am helping with Chapter 11 in the PEDH Volume 2. See below for where you might be able to volunteer. Thank you very much. We are looking at possibly rewarding volunteers with something like Chapter Dues for a year or Free Technical Meetings. Please contact me at 714-305-9015 for more information.

### **Did you miss our free webinar on designing with PEX?**

This one-hour webinar based on the Plastics Pipe Institute's "Design Guide: PEX Water Supply Plumbing Systems" originally aired

# PRESIDENT'S MESSAGE

on January 16, but you can still view it [ataspe.org/DesigningPEX](http://ataspe.org/DesigningPEX) and earn CEUs. Thanks to PPI, ASPE members can view it for free.

## How can you join the plumbing industry's elite this year?

The Certified in Plumbing Design (CPD) credential signifies professionals with the highest level of skills in the design and specification of plumbing systems, and you can earn it by passing the CPD exam. This year's exam is being held on April 5 and 6 at testing sites around the world, and registration closes on March 22. Click here to learn why you need to become a CPD, and to register for the 2018 CPD exam, go to [aspe.org/CPDExam](http://aspe.org/CPDExam).

## The latest Read, Learn, Earn is now online

Do you need some quick CEUs? Just go to [aspe.org/read-learn-earn-articles](http://aspe.org/read-learn-earn-articles), where the February 2018 exam has just been published. Read the article, take the exam, and if you pass, you will instantly receive 0.1 CEU for your licenses and certifications.

## Legionella bacteria is more common in cooling towers than thought

In a study of 196 cooling towers across the United States, CDC researchers found that 84 percent tested positive for Legionella DNA, and approximately 40 percent contained viable Legionella. [More>>](#)

## ARCSA AP is now a prerequisite for the ASSE Series 21000 Rainwater Catchment Systems Personnel Certifications

For two years, ASSE will allow those individuals who currently have the ARCSA AP, D&C, and IS accreditations to take the ASSE Series 21000 certification exam without going through the entire ASSE certification program. In 2020, the ARCSA AP will be

replaced by the ASSE Rainwater Catchment Systems Personnel Certification. [More>>](#)

Another reminder. Our goal is to get our membership up to 110 by June 30. We are up to 105 OC members right now. As my monthly reminder, adding members (both affiliates and engineers) to our group adds a bigger knowledge base to our group, which benefits everyone. One of the reasons we hear that some engineers are not attending meetings is the lack of support from their employers. Please note that many of our affiliate members are willing to help sponsor memberships and even some meetings dues for engineers who would like to attend the Technical Meetings, the CPD Review Classes, and Saum Nour's classes each month prior to our Technical Meetings. Please pass this information on to all your colleagues.

Please contribute your ideas for meeting topics to Carl Ludwig ([carl@ironwoodplumbing.com](mailto:carl@ironwoodplumbing.com)). Remember there is a prize worth \$50 to anyone coming up first with an idea for a speaker that we use.

I look forward to seeing you all on February 28.



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**EDUCATION**

	Name of Institution	Course or Major	From	To	Graduation Date	Degree/Diploma
High School						
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(This section must be completed as it affects membership grade classification. List chronologically, beginning with the present. Work description must be clear and concise: e.g., plumbing, piping, fire protection, HVAC, etc. Use additional sheet as necessary.)

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**REFERENCES**

(References should be in engineering profession. ASPE members preferred. ASPE reserves the right to contact references.)

Name	Address	Telephone

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Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

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# LEGISLATIVE REPORT

by Dr. Saum K. Nour, PE, CPD, CFPE, ASPE Fellow  
V.P. Legislative

## Hot Water

K. Nour, PE, Ph.D.

Hot water is one of the plumbing design components. Given the energy stored in hot water and scarcity of water, the variations in making hot water, and the new energy laws has made this subject very interesting and wanted.

A series of seminars and technical sessions are projected this year in the ASPE Orange County.

This month, the basic hot water equations and recirculation is discussed.

Later the multiple legislation issues will be reviewed.

Next hot water heater sizing will be discussed.

It is assumed we can add Water Heater types will end the seminar.

There are quite number of subjects to cover:

First basics of water heating

The variables in the equation  $q=mC\Delta T$  mean the following:

$q$ =heat energy gained or lost by a substance

$m$ =mass (weight)

$C$ =specific heat

$\Delta T$ =change in temperature

Specific heat varies with different properties.

**Specific Heat Capacities of Common Substances**

MATERIAL	SPECIFIC HEAT J/kg°C		MATERIAL	SPECIFIC HEAT J/kg°C
alcohol	2450		ice	2060
aluminum	903		iron	450
brass	376		lead	130
carbon	710		silver	235
copper	385		steam	2020
glass	664		water	4180
gold	129		zinc	388

The higher value simply states, the material holds more heat within its mass. Old times, bricks were heated and used for cure. Bricks hold the heat based on the C value.

To warm up water for coffee, from tap water (~70 degrees to 212 degrees= 212- 70= 142 degrees).The mass could be one cup or 2 gallon pot. At the end,  $q$  amount of btu's are spent to warm up water.

If the pot is attached to city water, the water flows the pipe is heated, assuming 100% efficient. A 199,000 btu tankless water heater

heats a water at 6 gpm will rise the water by 40 degrees.

Next the flow of hot water piping causes more erosion due to higher temperature, therefore the flow reduces to 5 ft per second at 140 degrees and 2 ft per second for 180 degrees F.

The recirculation is only merely to keep the pipe hot, small pipe and pump can provide this service.

The energy compliance has entire section dedicated:

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The variation in controls of the pump is another subject of energy codes.

Water heater sizing to meet the demand and variations in type of water heaters provides many lectures for the future.

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# TECHNICAL REPORT

*By Carl Ludwig, VP Technical*

Greetings everyone and I hope all had an enjoyable Engineers Week (February 18th -24th)!

Following up from our last Technical Meeting on January 31st we had a great turnout. I would like to thank Mr. Craig Boyce with Kemper Hygiene Systems (KHS) who gave an educational and informative presentation on Mitigating the Risk of Legionella in Plumbing Systems.

Moving forward, we are excited to announce that our next Technical Meeting will be on February 28th, 2018. This will be Part 1 of a 3-Part series on Hot Water. We have Dr. Saum Nour, P.E. with Absolute Consulting Engineers opening the meeting, followed by Mr. Eric Decker, P.E. with Dawson Company continuing the conversation and discussing how to correctly size domestic hot water recirculation pumps. This is an important topic that every Plumbing Engineer should know. This is a Must-See Presentation.

For our tabletop presentation, we will have the privilege of hearing from Mr. Ira Schumer with Signature Sales and he will educate us on Mission Heavyweight Couplings.

Please keep in mind that if anyone would like to reserve a tabletop presentation, please do not hesitate to let me, or anyone on the ASPE OC Board know. Also, if anyone is interested in water sizing, I recently found out that IAPMO has a new Water Demand Calculator. This is available at <http://www.iapmo.org/Pages/WaterDemandCalculator.aspx>.

In addition, please know that registration is now open for the CPD exam. To help prepare Plumbing Engineers we will have Dr. Saum's - CPD Preparation Lecture - at 5:30pm. This is a Must-Attend-Event and we hope you can make it.

Look forward to seeing everyone on February 28th, 2018.

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# ASPE OC ADMINISTRATIVE SECRETARY REPORT

*By Jim Weil, Administrative Secretary*

## **ASPE OC Administrative Secretary Report Board of Directors Meeting January 31, 2018**

Called to order by President Chris MacKnight at 4:28 PM.

Present for the meeting: Chris MacKnight - President, Carl Ludwig - VP Technical, Saum Noor - VP Legislative, Kurt Bramstedt, Alex Jimenez - VP Membership, Roland Gutierrez - Corresponding Secretary, Jim Weil - Administrative Secretary, and Bob Woods - Treasurer.

Alex Jimenez reported membership retention growth; currently we stand at 106 members. Goal of 100 obtainable. Saum Noor suggested that 140 by June should be our 1st goal (San Diego has 95 members).

Kurt Bramstedt asked what the next category was for chapter convention delegates.

Suggested chapter goals to keep growing:

- 1) 115 members by June - passed by acquiescence.
- 2) Keep CPD class going.
- 3) Start Revit classes. May need more than 1 per month. CL funding available for classes. Saum thought that it would not be necessary or desirable to pursue. Alex suggested speaking to BIM managers - ask if it can be tied to ASPE.
- 4) Revit User Group - Carl Ludwig wondered if we could offer dinner or cash to those that passed the test.
- 5) Kurt suggested another joint meeting with ASHRAE.
- 6) Chris advocated pursuit of the ASPE Chapter Award of Merit, but Saum said it was too late, we wouldn't qualify.
- 7) Get one or more volunteers to edit one or two PEDH (Plumbing Engineering Design Handbook) chapters.

Carl did a run down on upcoming speakers through March, and possible future speakers and topics: Energy code requirements for water heaters, tour in April or May, possibly June. Chris said usually July or August. (Sidebar discussion on previous dealing with proprietary presentations.) Chris suggested inspectors and non-industry speakers. Kurt proposed OSHPD speaker; Carl Ludwig suggested April Trafton; she heads IAPMO plumbing and mechanical committees. Alex suggested a brewery tour, and a hospital tour, possibly Hoag.

Saum:

- 1) Stated that LA is enforcing and State of California water heater codes - should add to newsletter.
- 2) National (ASPE) is slow on legislative issues; no dialogue.
- 3) Plumbing engineers: ME exam option in lieu of independent plumbing engineer PE. Ten states must approve, 3 have already done so.
- 4) Nominated Don Strickland for ASPE Fellow. Requirements: 3 references, 20 years membership.

Chris: Brought up upcoming election (next year) position filling.

(Open forum)

- 1) Chris: Golf Committee upcoming 2/2 meeting Holiday Inn La Mirada, 11:30. Same fees, both courses. Region 4 Presidents Meeting this year Marina Del Rey; LA Chapter is hosting.
- 2) Alex: Number of delegates for convention? How will we select? Lottery?
- 3) Saum: Couple of CPD students good candidates to bring in as possible board members. Chris asked for suggestions on how we should choose. Saum stated that Andy Phan would be a great candidate for board member. Alex suggested Eric from P2S for a del-

egate and for board member. Saum stated that we should identify AYP representative now (currently it is Eric Decker). Ron George was suggested as a speaker; will do for expenses only.

4) Bob Woods stated that we have a huge amount of cash on hand, and this could jeopardize our non-profit status. Chris suggested that we buy computers.

5) Holiday Social was sparsely attended, but most want to do it again. Roland suggested bowling - it's more interactive. Saum recommended The Catch.

Meeting was eventually adjourned at 5:20 due to lack of a quorum.

## Plumbing Design Engineer's : Orange County, San Diego and San Jose available positions at all levels.

We are looking for a team players! We are looking for a motivated, team-oriented, collaborative leader to support the growth of our fast-developing Plumbing team. This person would play a key plumbing engineering group and would be responsible for delivery of technical engineering work.

Key Responsibilities: The Plumbing Engineer is responsible for performing complex design calculations, sketches, technical comparisons and similar technical work as required by assignment. Designs complete systems (e.g. water hot and cold systems, waste and vent, storm drainage, natural gas, fuel oil, controls, medical gases) for low through mid-rise projects. In addition, the engineer calculates and understands impacting issues in Title-24 compliance.

### Typical Duties:

- Performs more complex design calculations, sketches, technical comparisons and similar technical work as required by assignment / direction by Project Manager.
- Performs coordination at a higher level by reviewing drawings supplied by vendors, other team engineers, and the architects and implements design modifications as necessary.
- Researches code issues as directed by the Project Manager.
- Researches design options and discuss findings with Project Managers.
- Proficiency in the use of 2D/3D software, including AutoCAD 2D, AutoCAD 3D, Revit, and Navisworks.
- Proficient computer skills with programs such as Word, Excel, PowerPoint, and Microsoft Project Experience performing site investigations of existing building system for renovation type projects.
- Visiting jobsites during construction phase and identifying and generally confirming the proper installation of designed systems and equipment.
- Communicating with and utilizing subordinates (e.g. CAD/BIM manual drafting and Design personnel) in the preparation and/or completion of design documents.
- Communicating with architects and other consultants regarding building systems and their impact on the system design.
- Communicating with building officials regarding code issues impacting system design.
- Begin to interact with clients as his or her level of experience progresses. May attend "kick-off" and design review meetings as directed by a Project Manager.
- Reviewing project budget cost and preparing opinions of probable construction costs.

**Qualifications:** Bachelor's Degree in Engineering or Related field is preferred.

- 5 - 7 years of project experience in Plumbing design.
- Experience with AutoCAD and Revit is required.
- Knowledge of California Plumbing Code and related California Building Codes.
- Knowledge of green building practices and LEED Rating System.
- LEED AP Certification is desired.
- Experience with healthcare plumbing systems and life science projects are desirable. (OSHDPD)

**Nancy Whitley**

**nwhitley@healthcarentalent.net**

**949-709-1883x 232**



**Anne Yardley Caldwell**

[ayardley@elmcoduddy.com](mailto:ayardley@elmcoduddy.com)



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**Commissioning Agent CxA Qualifications & Requirements:**

- 3-5 years' experience in mechanical building design, including commissioning projects design review, commissioning specifications, startup review and all testing
- Functional Performance Testing (FPT) and Performance Verification Testing (PVT), and final commissioning report composition
- Technically proficient in HVAC systems design, DDC control systems and lighting control systems
- EIT or PE certification helpful but not required
- Certification with ACG as a Commissioning Authority for military, commercial, and hospitality projects helpful but not required
- Excellent written and verbal communications and some travel (mostly in Southern California) is required.

We offer a stimulating and collaborative work environment with competitive salary & benefits and opportunities for advancement. We are proud to offer a variety of benefits including medical, dental, vision insurance, 401K match & much more.

**Please send your resume, a cover letter, and your salary requirements to:**

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Ranked as one of the top engineering companies in San Diego by the San Diego Business Journal, T-Squared Professional Engineers, Inc. is a 24 year-old, privately held, industry-leading consulting engineering firm specializing in HVAC, Electrical, and Plumbing Systems Design as well as Photo-Voltaic Systems Design.

At **T-Squared Professional Engineers**, we believe our current and future success depends on hiring, developing, and retaining high caliber people. We are always interested in hearing from exceptional candidates, and we invite you to learn more about us. Please view our website at [www.tsqeng.com](http://www.tsqeng.com).

**Mechanical Designer/Engineer (Carlsbad/Vista)**

**Overview:**

**Immediate opening for a Mechanical Designer/Engineer to join our team.**

The successful candidate will be professional, self-motivated, energetic, & enthusiastic with excellent communication and inter-personal skills, and a desire to contribute to our continued success. Previous consulting engineering firm experience required.

**We value your experience including the following qualifications, technical skills, and abilities:**

- Strong technical skills and the ability to produce accurate and timely HVAC systems designs for commercial, educational, health-care and military facilities
- Design and documentation skills
- The ability to develop layouts and detailed schematics for HVAC systems
- Expertise in piping and hydronic designs
- Comprehensive understanding of energy conservation reports
- Title - 24 calculation
- LEED design experience with a focus on energy efficiency and sustainability
- LEED documentation and coordination skills

**Qualifications / Requirements:**

- Bachelor's degree in Mechanical Engineering (or related industry experience) and a minimum of 4 years' experience in Mechanical design, or equivalent combination of education and experience
- Recent relevant experience in the engineering/construction field
- Experience in packaged equipment and central plants
- Knowledge of CA Energy Standards - Code Requirements
- EIT or PE certificates helpful but not required.
- LEED – AP preferred
- Team-player: Demonstrated ability to effectively manage a projects and/or take direction from project managers
- Proficiency with MS Office and CAD
- Strong verbal and writing communication skills

**Plumbing Designer/Engineer (Carlsbad/Vista)**

**Overview:**

**Immediate opening for a Plumbing Designer to join our team.**

The successful candidate will be professional, self-motivated, energetic & enthusiastic with excellent communication and inter-personal skills and a desire to contribute to our continued success. Previous consulting engineering firm experience required.

**We Value Your Experience Including the Following Qualifications, Technical Skills & Abilities:**

Design and assist with designing Plumbing Systems for commercial, educational, health-care and military facilities.

- Prepare detailed layouts for all drainage and water supply systems for all types of facilities, piping & hydronic designs
- Research & select equipment from various manufacturers
- Complete fixtures / equipment schedules
- Perform calculations for a project, such as equipment selection and sizing, fixtures calculations, product specifications, and design and layout for roof drains, sanitary lines, and water lines.
- Estimate construction costs and evaluate feasibility of construction
- Comprehensive understanding of Code Compliance
- Provide drafting support using AutoCAD and BIM to drafting staff

**Qualifications & Requirements:**

- A minimum 4 years of directly related experience in plumbing design or equivalent combination of education and experience.
- Recent relevant experience in the engineering/construction field
- Plumbing design from Schematic Design through Construction Administration
- Comprehensive knowledge of plumbing engineering fundamentals
- LEED – AP preferred
- Team-player: Demonstrated ability to effectively manage a projects and/or take direction from project managers
- Proficiency with MS Office and AutoCAD
- Strong verbal and writing communication skills

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# ASPE OC ADMINISTRATIVE SECRETARY REPORT

*By Jim Weil, Administrative Secretary*

**ASPE OC Administrative Secretary Report  
General Meeting January 31, 2018**

**Meeting called to order by Chris MacKnight at 7:09 PM**

**Pledge of Allegiance:** Led by Carl Ludwig

**Announcements:** John Zagorsky: The annual golf tournament will be held on May 11th. The golf committee will be meeting this coming Friday (2/2); introduced the committee members. The tournament will be the same cost this year and also be at Brookside, Pasadena; 2 courses.

Chris thanked Saum Noor for his service (CPD Classes).

**Recognition of Past Presidents:**

- o Saum Noor
- o Terry Puckett (ASPE member #34)
- o Andrew Cole

**New member and guest introductions**

**Self-introductions**

**Technical Presentation:**

- o Introduction by VP Tech Carl Ludwig
- o Speaker: Craig Boyce with Kemper AIP
- o Topic: Mitigating the Risk of Legionella in Plumbing Systems
- o Questions from the audience
- o Certificate of Appreciation was presented by Carl

**Fines were levied by Sergeant at Arms John Zagorski:**

- o Chris MacKnight \$4 for not calling on Sergeant at Arms the last 2 meetings
- o Bob@ Super Clean \$2 welcome to the meeting
- o John Patterson @ Govis Engineering \$2 welcome to the meeting
- o Brian @ Renco Sales \$5 for not being at a meeting in a long time
- o David Wicketts \$5 for not being at a meeting in a long time
- o Just @ Rheem \$2 congrats on his new job
- o Mike Adkins @ Guardian \$2 welcome to the meeting
- o Robert Caballes @P2S \$2 welcome to the meeting
- o Luis Molina @ P2S \$2 congrats on his new job
- o Andy @ P2S \$2 congrats on his new job
- o Sagar Shah @ PBS \$2 welcome to the meeting

**Raffle – Prizes donated by:**


- o Lubrizol/Chris Smith – Two (2) gift cards

- o Signature Sales/Ira Schumer – Wine (2)
- o Delco Sales/Alex Jimenez – Gift card, Crowne Royal
- o Spears/Mario Orlando - Candy
- o Culligan/Sandy Morimoto – Chocolates
- o Custom H2O/Chris MacKnight – Engineer-only prizes
- o Guardian/Mike Atkins – Gift card

**Table Top Presentation:**

- o Kurt Bramstedt - Rheem energy saving water heaters

Meeting adjourned 8:47 PM



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	<ul style="list-style-type: none"> <li>◆ Submersible and dry pit non-clog sewage, effluent and wastewater pumps</li> <li>◆ Grinder pumps, cutter pumps, jacketed pumps, and portable dewatering pumps</li> <li>◆ High temperature and corrosion resistant pumps</li> <li>◆ 10 GPM to over 10,000 GPM, 1/2 HP to over 500 HP Prefabricated lift stations</li> </ul>												
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	<ul style="list-style-type: none"> <li>◆ Non-chemical water treatment using ozone technologies</li> <li>◆ For cooling towers, lakes, fountains, aquariums, swimming pools and other open systems</li> <li>◆ AquaPak™ EWS emergency water supply packages for critical facilities</li> <li>◆ CleanStream™ cooling tower filtration packages</li> </ul>												
	<ul style="list-style-type: none"> <li>◆ Patented electroabsorptive technology for water purification and filtration</li> <li>◆ Submicron particulate, pathogen, trace pharmaceutical, &amp; cellular debris removal</li> <li>◆ Much lower pressure drop, higher flow rates than comparable UF membranes</li> <li>◆ Seromix Advanced Metals Removal System</li> </ul>												
	<ul style="list-style-type: none"> <li>◆ Packaged fire pump systems</li> <li>◆ Inline, end suction and double suction circulating pumps</li> <li>◆ Turbine, axial, and mixed flow pumps</li> <li>◆ Vertical and horizontal multi-stage pumps</li> </ul>												
	<ul style="list-style-type: none"> <li>◆ PURAIN Self-Cleaning Pre-Filters for Rainwater Collection Systems</li> <li>◆ AQUALOOP Graywater Treatment                             <ul style="list-style-type: none"> <li>• 6 Log Reduction of Bacteria (99.9999%) and 99.7% Virus Removal</li> <li>• NSF 350 Certification</li> </ul> </li> <li>◆ DRAINMAX Tunnel Infiltration Products for On-Site Detention</li> </ul>												
	<ul style="list-style-type: none"> <li>◆ Pneumatic Ejectors</li> <li>◆ Diaphragm Pumps</li> <li>◆ Plunger Pumps</li> </ul>												
	<ul style="list-style-type: none"> <li>◆ Stainless steel vertical and horizontal multi-stage pumps</li> <li>◆ Flows to 550 GPM, Heads to 1350 Ft., Temp to 285° F, Working Pressures to 600 PSI</li> <li>◆ Cast AISI 304 or 316 stainless steel S/D casing</li> <li>◆ NSF/ANSI 61 Annex G certified</li> </ul>												
	<table border="0"> <tbody> <tr> <td>◆ HVAC specialties</td> <td>◆ Air separators</td> <td>◆ Butterfly valves</td> </tr> <tr> <td>◆ Triple duty valves</td> <td>◆ Flex connectors</td> <td>◆ Heat exchangers</td> </tr> <tr> <td>◆ Suction diffusers</td> <td>◆ Strainers</td> <td>◆ Flow metering devices</td> </tr> <tr> <td>◆ Expansion tanks</td> <td>◆ Hydropneumatic tanks</td> <td>◆ ASME pressure vessels</td> </tr> </tbody> </table>	◆ HVAC specialties	◆ Air separators	◆ Butterfly valves	◆ Triple duty valves	◆ Flex connectors	◆ Heat exchangers	◆ Suction diffusers	◆ Strainers	◆ Flow metering devices	◆ Expansion tanks	◆ Hydropneumatic tanks	◆ ASME pressure vessels
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◆ Expansion tanks	◆ Hydropneumatic tanks	◆ ASME pressure vessels											
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# 2017 - 2018 ASPE OC CHAPTER BOARD MEMBERS

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 Custom H2O  
 (714) 305-9015



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 (714) 331-1881



**Saum Nour**  
 Vice President – Legislative  
 Absolute Consulting Engineers  
 (949) 852-8700



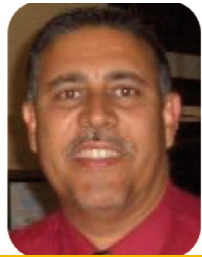
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 AYP Liaison  
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 (909) 762-0924



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**Roland Gutierrez**  
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