AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS, INC.

ASHRAE Champlain Valley Chapter

THE CHAMP monthly newsletter

of the Champlain Valley Chapter of ASHRAE

NOV. 2015

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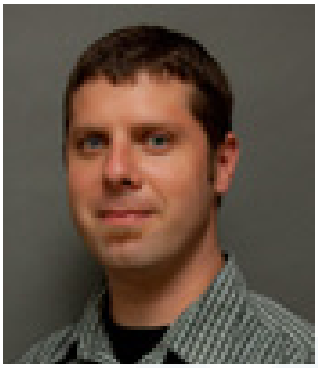
PRESIDENT'S MESSAGE



Our November 4th meeting was a presentation on dust collection systems. We also had our Research Promotion Night where 2 UVM hockey tickets were raffled off. Ray Spears took home the prize for the evening. Thank you to Trane and Tom Zoller for setting this up. Judging by the picture that Tom pulled up on the screen prior to the drawing the tickets this year are even better than the ones raffled off last year.

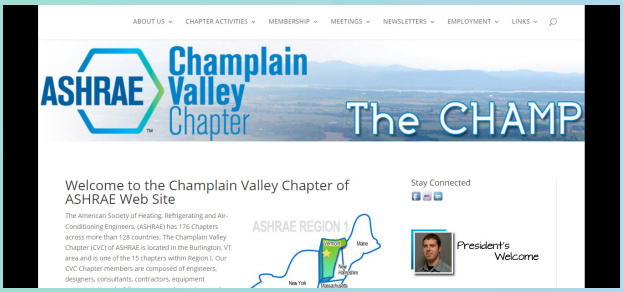
Looking ahead, our December 2nd meeting will be on biomass followed by a visit from the Society President on Monday January 18th.

Finally, thank you for your support and participation with our local Chapter. November and December look good as does the rest of the year. We look forward to seeing you at the next meeting.

Rob Ward
ASHRAE CVC President

ASHRAE CVC UPCOMING EVENTS

Visit us online at
www.ashraevt.org
for a list of upcoming events



IN THIS ISSUE:

ASHRAE CVC 2015-16 MEETING CALENDAR

MONTH	MONTHLY MEETINGS		LOCATION	TOPIC
	BOG	DINNER		
2015				
Aug.	8/6/15	8/6/15	VHV Office	
Sep.	9/9/15	9/9/15	Holiday Inn	Water Source Heat Pump Design
Oct.	10/7/15	10/7/15	Holiday Inn	DL Visit - BEQ Presentation
Nov.	11/4/15	11/4/15	Holiday Inn	Dust Collection Systems
Dec.	12/9/15	12/9/15	Holiday Inn	Biomass
2016				
Jan.	1/20/16	1/20/16	Holiday Inn	Presidential Visit
Feb.	2/3/16	2/3/16	Holiday Inn	TBD
Mar.	3/2/16	3/2/16	Holiday Inn	Chilled Beams
Apr.	4/6/16	4/6/16	Holiday Inn	Pump selection
May	5/4/16	5/4/16	Holiday Inn	Air and dirt elimination
Jun.	6/1/16	6/1/16	Holiday Inn	Tailgate Event

TECHNOLOGY TRANSFER

Out November meeting will be a presentation from Peter Levitt of Sternvent. Mr. Levitt has numerous years of experience as a sales engineer by offering product technical support and working closely with design professionals, contractors, and sales reps in applying and selecting dust collectors for projects.

He has a broad background and understanding of dust collection system design & product selection for industrial as well as institutional facilities His specialty is interpreting & applying fire & life safety codes for dust collection systems.

Mr. Levitt will present on the design of dust collection systems, with a focus on high school wood shop applications. His presentation will also include the most current NFPA guidelines and Fire Suppression components that are required for a code-compliant installation.

We hope to see you there! Keep an eye out in your email for the RSVP link.

Upcoming Meetings:
November 4thth – Dust & Noise Control
December 2nd – Modern Wood Heating & Biomass
January 13th – Society President

If you have any questions about the upcoming presentations, or have a suggestion for a future topic, please feel free to get in touch with me. I can be reached via email, blaine.conner@vtmechanical.com or by phone at 802-343-8644.

Blaine Conner
ASHRAE CVC CTT Committee Chair

GRASSROOTS GOVERNMENT AFFAIRS COMMITTEE

It's relatively quiet locally regarding government activities, however there is some news on the federal level that I have gathered from the ASHRAE website that our members may have some interest knowing about.

DOE Updates Baseline for Federal Commercial and Multi-Family High-Rise Residential Buildings to Standard 90.1-2013
The US Department of Energy (DOE) has published a final rule updating the baseline federal energy efficiency performance standards for the construction of new federal commercial and multi-family high-rise residential buildings to Standard 90.1-2013. This rulemaking goes into effect for such buildings that design for construction begins on or after November 6, 2016. Full information can be found at the following link:
https://www.federalregister.gov/articles/2015/11/06/2015-28078/energy-efficiency-standards-for-new-federal-commercial-and-multi-family-high-rise-residential

DOE Amends Federal Register Following Court Settlement for Six Energy Conservation Regulations on Walk-In Coolers and Freezers
The United States Court of Appeals for the Fifth Circuit vacated six energy conservation standards for walk-in coolers and walk-in freezers as a result of a settlement agreement reached by the litigants. Consequently, DOE recently issued an amendment to the Federal Register that reflects

the court's order. Additional information can be found at the following link: *https://www.federalregister.gov/articles/2015/11/12/2015-28728/energy-conservation-program-energy-conservation-standards-for-walk-in-coolers-and-freezers*

States and Municipalities Join Together to Support the Clean Power Plan

California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, New York, Oregon, Rhode Island, Vermont, Virginia, Washington and the District of Columbia along with the cities of Boulder (CO), Chicago (IL), New York (NY), Philadelphia (PA) and South Miami (FL), as well as Broward County, Florida have formed a coalition across the country to defend the Clean Power Plan, which sets nationwide limits on greenhouse gas emissions from power plants. This coalition is in response to suits from other several states, coal companies and industry groups which have filed to block the new rules that are aimed at slowing climate change. To review information on the EPA's Clean Power Plan refer to the following link: http://www2.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants

Vermont Comprehensive Energy Plan

In next month's newsletter, I hope to have updates on Vermont's Comprehensive Energy Plan.

Dick Wilcox
ASHRAE CVC GGAC Chair

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STUDENT ACTIVITIES

VTC Chaper
Committee Chair: Brent Weigel

Student Chapter Advisor: Chris Reilly
Student Chapter President: Rebecca Robinson

We have two important Student Activities initiatives underway:

Support of VTC Chapter student attendance at the 2016 ASHRAE Winter Conference.

Formation of our Student Activities Committee.

The ASHRAE Winter Conference and the associated AHR Expo provide an unparalleled opportunity to learn about industry-leading practices and technologies in HVAC&R. The Winter Conference is also a great venue for students to learn about employment opportunities in our industry. With your help in 50/50 raffles, the CVC Student Activities Committee would like to support VTC student attendance at the 2016 ASHRAE Winter Conference and AHR Expo.

I would like to extend a Student Activities Committee invitation to all members of our Chapter. The service and impact of the Student Activities Committee is directly dependent on the talents and energy of our Chapter members. Importantly, we need your help in making new connections with area schools and students. Please let me know of any interest you may have in serving with the Student Activities Committee.

Brent Weigel
ASHRAE CVC Student Activities Chair

THREE VTC STUDENTS RECEIVE ASHRAE SCHOLARSHIPS

The Champlain Valley Chapter of ASHRAE would like to acknowledge and congratulate three VTC students for being awarded Society's 2015-2016 Bachelor of Engineering Technology Scholarships. The three students were selected to receive a one-year $5,000 scholarship award each at the 2015 Annual Conference in Atlanta. These scholarship awards are based on the student's outstanding scholastic and leadership ability, character, potential service to the HVAC&R profession and financial need.

The recipients of the scholarship awards are Caleb Bristol, Rebecca Robinson and John Kubacz.
All three students are Bachelor of Science in Architectural Engineering Technology majors expecting to graduate in May 2016. The students were presented with their ASHRAE scholarship certificates by outgoing CVC President Rob Favali and 2015-2016 CVC President Rob Ward, III on September 9, 2015.

VTC Students with their scholarship certificates from ASHRAE presented on the September 9, 2015 meeting of the Champlain Valley Chapter. (Pictured l to r: John Kubacz, Caleb Bristol and Rebecca Robinson) photo courtesy of Scott A. Sabol, PE, Professor Architectural & Building Technology – VTC

Michael R. Cook
ASHRAE CVC Chapter Historian

BOG OCTOBER MEETING MINUTES

Date: 10-07-2015
Location: Holiday Inn, South Burlington VT
Called to Order: 4:10pm
Called to Order By: Rob Ward
Minutes Recorded By: Martha Holden

ATTENDANCE:

Name	Title	Organization	Present
Rob Ward	President	VHV Company	x
Blaine Conner	President-Elect Program Chair	Vermont Mechanical Inc	x
Brent Weigel	Vice President	Cx Associates	x
Jeremiah Trombly	Treasurer	Mountain Air Systems	
Martha Holden	Secretary	VHV Company	x
Rob Favali	BOG Member	Dubois & King	x
Nathan Mascolino	BOG Member	VHV Company	x
Dick Wilcox	BOG Member Grassroots Gov	VHV Company	x
Mike Cook	BOG Member History Chair	ARC Mechanical	x
Rachel Mascolino	BOG Member	VEIC	
Shawn Labelle	BOG Member	Vermont Mechanical Inc	x
Tom Zoller	Research & Promotion Chair	Trane Inc.	x
Peter Bailey	Refrigeration Chair	DEI Controls	x

OFFICER'S REPORT

1. **Secretary – Martha Soule Holden**
   a. For those of you who did not receive the corrections from Tom Z. I have reprinted here FYI should someone ask how or where to donate. "It's easy to donate simply go to www.ASHRAERP.com and then find Donate button in upper right corner. Optional suggestions donate $75 towards research and $25 towards scholarships." "
   b. Afterwards, Blaine C. motioned to approve the October meeting minutes, Mike C. seconded, motion carried.

2. **Treasurer's Report – Jeremiah Trombly**
    a. Jeremiah was absent, Rob W. filled in.
    b. Current Balance: $17219.12
    c. Discussed establishing Quick Book "categories" to manage funds in CV Chapter Account.
    d. ASHRAE 2015-2016 Budget Status – not yet submitted by Rob Ward.

3. **Chapter Programs – Blaine Conner**
    a. Blaine C. introduced tonight's technical presentation, Peter Levitt on Dust Collection Systems (Sternvent) for school wood shops applications.
    b. It was noted twice that tonight's meeting was under-advertized. Discussed the announcement frequency prior to each meeting: 2 wks before, 1 wk before & Monday before meeting.
    c. Reviewed the Chapter Program, no changes.

4. **Resource Promotion - Tom Zoller**
    a. RP fund raising campaign received 16 donations totaling $2,264 to date.
    b. With a total $3,155 to date including future matching funds.
    c. The Hockey Ticket Raffle would be drawn this evening (Ray Spear was the lucky winner).

5. **Membership – Martha Soule Holden**
    a. Received quarterly update from ASHRAE (7/1/15-9/30/15):
    Start Total 136; Year-end Growth Goal 3 or 139; First Quarter Total 138.
    b. CV Society Delinquent Report 10/6/2015 has total 9 members delinquent. I will send reminders to members on this list to renew their memberships.
    c. We presently have 4 new members so far this year.

6. **Student Chapter – Brent Weigel**
    a. Met with VTC Student Group and Student Leader Chris Reilly to discuss their goals getting to the January CRC Meeting and what technical tours they would be interested in attending.
    b. VTC has a conference budget of $6,575 for 12 students and Chris Reilly. After receipt of monies from the VTC Student Council and chapter members, the VTC Chapter has a remaining balance fundraising goal of $3,175. Discussed how CV Chapter would help in achieving their goals. Discussed amounts for our donation versus last year's donation of $1,225.
    c. Nathan made a motion to donate $1500, Dick W. second the motion, but it didn't go to a vote after discussion about the 2015-16 budget not completed.
    d. Blaine C. motioned to "table" the amount until the CVC Budget is completed, Shawn L. second, passed.

7. **Grassroots Government – Dick Wilcox**
    a. Discussed the joint meeting with AIA and Grassroots Government for the March Meeting.

8. **History – Mike Cook**

a. No new business.

9. **Refrigeration – Peter Bailey**
   a. No new business.

GENERAL / NEW CHAPTER BUSINESS

1. Discussed how to thank the creators of our new CV Banner. Nathan M. motioned to acquire a gift card to a restaurant, Dick W. second, passed.

2. Discussed the amount of the gift card, Mike C. motioned to approve a $100 amount, Blaine second, passed.

3. Newsletter write-up due 11/16.

4. Next meeting December 2nd on Biomass Technology to be held at Holiday Inn SB.

MOTION TO ADJORN

a. Nathan motioned to adjourn the meeting, it was seconded by Dick W., and motion was carried. The meeting adjourned at 5:15 pm

msh

These minutes are the writers understanding of the discussions involved. If there are any exceptions taken, or omissions, please notify the writer immediately.

ASHRAE Learning Institute

Seminars & Courses at ASHRAE's Winter Conference in Orlando, FL

2 WAYS TO REGISTER

Internet: www.ashrae.org/orlandocourses
Phone: Call 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide)

Full-Day Professional Development Seminars

$485/$395 ASHRAE Member -- Earn 6 PDHs/AIA LUs or .6 CEUs

Commercial Building Energy Audits
Saturday, January 23, 2016 – 8:00 a.m. to 3:00 p.m.

Commissioning Process in New & Existing Buildings
Saturday, January 23, 2016 – 8:00 a.m. to 3:00 p.m.

Designing HVAC Systems to Control Noise & Vibrations
Saturday, January 23, 2016 – 8:00 a.m. to 3:00 p.m.

Energy Modeling Best Practices and Applications
Tuesday, January 26, 2016 – 9:00 a.m. to 4:00 p.m.

Operations & Maintenance of High-Performance Buildings
Tuesday, January 26, 2016 – 9:00 a.m. to 4:00 p.m.

Half-Day Short Courses

$159/$119 ASHRAE Member -- Earn 3 PDHs/AIA LUs or .3 CEUs

Laboratory Design: The Basics and Beyond
Sunday, January 24, 2016 – 3:30 p.m. to 6:30 p.m.

Troubleshooting Humidity Control Problems
Sunday, January 24, 2016 – 3:30 p.m. to 6:30 p.m.

Understanding & Designing Dedicated Outdoor Air Systems
Sunday, January 24, 2016 – 3:30 p.m. to 6:30 p.m.

Variable Refrigerant Flow System Design & Applications NEW!
Sunday, January 24, 2016 – 3:30 p.m. to 6:30 p.m.

Air-to-Air Energy Recovery Applications: Best Practices
Monday, January 25, 2016 – 8:30 a.m. to 11:30 a.m.

Applications of Standard 62.1-2013
Monday, January 25, 2016 – 8:30 a.m. to 11:30 a.m.

Building Demand Response & the Coming Smart Grid
Monday, January 25, 2016 – 8:30 a.m. to 11:30 a.m.

Energy Management Best Practices
Monday, January 25, 2016 – 8:30 a.m. to 11:30 a.m.

Advoiding IAQ Problems
Monday, January 25, 2016 – 2:45 p.m. to 5:45 p.m.

Commissioning Process & ASHRAE Standard 202
Monday, January 25, 2016 – 2:45 p.m. to 5:45 p.m.

Complying with Standard 90.1-2013: HVAC/Mechanical
Monday, January 25, 2016 – 2:45 p.m. to 5:45 p.m.

Evaluation and Control of Legionella in Building Water Systems NEW!
Monday, January 25, 2016 – 2:45 p.m. to 5:45 p.m.

Exceeding Standard 90.1-2013 to Meet LEED Requirements
Monday, January 26, 2016 – 9:00 a.m. to 12:00 p.m.

IT Equipment Design Evolution & Data Center Operation Optimization
Monday, January 26, 2016 – 9:00 a.m. to 12:00 p.m.

Designing High-Performance Healthcare HVAC
Monday, January 26, 2016 – 1:00 p.m. to 4:00 p.m.

ASHRAE HVAC Design Training

2 Courses, 5 Days of Intense Instruction

Atlanta • Halifax • Hong Kong • Houston

Kuala Lumpur • Miami • Minneapolis • Vancouver

HVAC Design: Level I – Essentials - Registration is $1,264 ($1,009 ASHRAE Member)

Gain practical skills and knowledge in designing and maintaining HVAC systems that can be put to immediate use. The training provides real-world examples of HVAC systems, including calculations of heating and cooling loads, ventilation and diffuser selection using the newly renovated ASHRAE Headquarters building as a living lab.

HVAC Design: Level II – Applications - Registration is $854 ($699 ASHRAE Member)

HVAC Design: Level II — Applications provides instruction on HVAC system design for experienced HVAC designers and those who complete the HVAC Design: Level I – Essentials training. The training provides information that allows practicing engineers and designers an opportunity to expand their exposure to HVAC systems design procedures for a better understanding of system options to save energy.

Visit www.ashrae.org/hvactraining to register.

ASHRAE CVC CHAPTER AWARD WINNERS

OVERALL CHAPTER AWARDS

Champlain Valley Endowment Chevron

Champlain Valley Full Circle Chevron

Champlain Valley Bronze Treasury Ribbon

INDIVIDUAL CHAPTER AWARDS

Presidential Award of Excellence – Star Award Special Citation:
Robert J. Favali

Research Promotion Goal, High Five, and Challenge Goal:
Tom Zoller

Outstanding Performance Grass Roots Governmental Advocacy Committee Honorable Mention: Richard Wilcox

Gold Ribbon for History Award:
Michael Cook

Green Ribbon Award – Membership Committee:
Joshua Chiappone

Chapter Service Award:
Steve Poole

Black Ink Award - Honorable Mention:
Rachael Mascolino

Student Activities Best Student Design Competition Participation HVAC Design:
Vermont Technical College
2013-2014 & 2014-2015

Awardees: Bachelor Engineering Technology Scholarship 2015-16
Caleb Bristol
John Kubacz
Rebecca Robinson

ASHRAE LOWDOWN SHOWDOWN MODELING CHALLENGE HIGHLIGHTS INDUSTRY'S CREATIVITY

Contact: Jodi Scott
Public Relations
678-539-1140
jscott@ashrae.org

ATLANTA – When the smoke cleared and the dust settled at the ASHRAE "LowDown Showdown," organizers declared the overall "winner" to be the building industry, which will reap the benefits of knowledge shared at the event.

ASHRAE's LowDown Showdown was featured at the Society's "Energy Modeling Conference: Tools for Designing High Performance Buildings," held Sept. 30 to Oct. 2, 2015, in Atlanta, Ga. Eight teams with 45 people participated in the modeling challenge and presented their models to conference attendees.

"While it wasn't exactly the Wild West, there were a lot of ideas flying around and impassioned discussion among attendees," Dennis Knight, Conference chair, said. "The LowDown Showdown proved to be a big draw and a big success. Hopefully attendees will take the knowledge learned back to their jobs and use it to further the industry in energy modeling."

The LowDown Showdown complimented the conference's focus on the practical application of high performance building modeling. The Showdown challenged teams to model a net zero or better than net zero building. It gave team members the opportunity to work with the vendor/developer of their choice to showcase their abilities using the vendor's simulation tools, innovative workflows and creative problem solving to model a high performance building while having fun. The teams participating in the LowDown Showdown were:

- Autodesk
- Carrier HAP
- DesignBuilder
- EnergyPlus
- eQuest
- IES
- Sefaira
- Trane TRACE

"From the very beginning, the Steering Committee's intent when creating the challenge was to encourage participation, demonstrate tools' usage in modeling buildings and have the teams present their models before their peers and colleagues within a 'fair play' environment for the benefit of all participants and vendors," Knight said. "I really want to acknowledge all of the participants for their time and leadership that they devoted to their models – they are all to be commended for their successful projects." The modeling challenge included four categories for "judging" the models by live polling from the audience and the Steering Committee.

Knight said, "In retrospect all of the teams could have been recognized but it was

decided to recognize the following:

- Best Energy Use Results – TEAM IES;
- Best Innovative Workflow – Team DesignBuilder;
- Best Team Work – Team Trane TRACE; and
- Most Creative – Team eQuest."

Team's models are highlighted at www.ashrae.org/emc2015.

"We learned a lot in doing this for the first time," he said. "The extremely positive feedback from the LowDown Showdown participants and the conference attendees leads us to decide to organize another modeling challenge at the next ASHRAE conference."

ASHRAE and IBPSA-USA SimBuild 2016 Conference: Building Performance Modeling takes place Aug. 10-12, 2016, Salt Lake City, Utah. There is currently an open call for papers until Oct. 23. For more information or to submit an abstract, visit www.ashrae.org/simbuild2016.

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its more than 50,000 members worldwide focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability. Through research, standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today. More information can be found at www.ashrae.org/news.

DEADLINE EXTENDED FOR ASHRAE AND IBPSA-USA SIMBUILD 2016 CONFERENCE PAPERS

ATLANTA – ASHRAE and IBPSA-USA announce the deadline for submitting a paper abstract has been extended until Oct. 23 for the ASHRAE and IBPSA-USA SimBuild 2016 Conference: Building Performance Modeling. The co-organized conference takes place Aug. 10-12, 2016, Salt Lake City, Utah. There is currently an open call for papers until Oct. 23.

Modelers, software developers, owners and researchers will address the practices of energy modeling and building performance simulation using existing simulation tools, software development, and future simulation research and applications.

The conference seeks papers on the following topics:

- Energy efficiency
- HVAC component modeling and load analysis
- Urban scale modeling
- Lighting and daylighting
- Combined use of tools
- Co-simulation
- Optimization
- Algorithm advances
- Computational fluid dynamics
- Data exchange and interoperability
- Energy auditing
- Life cycle cost and economic analysis
- Model calibration and validation

- Automation and scripting
- Modeling of tall buildings
- Weather data for modeling
- Occupant comfort
- Heat, air, moisture modeling
- Uncertainty analysis
- Big data applications for large scale simulations
- Reality capture for modeling
- Data visualization and user experience

In addition, papers describing workarounds, case studies, how to's, challenges, barriers and cloud-based solutions are encouraged.

Abstracts (400 or less words in length) are due Oct. 23, 2015. If accepted, papers are due Jan. 15, 2016. The conference papers will be a maximum of eight pages in length.

To submit an abstract or for more information, visit www.ashrae.org/simbuild2016.

A call for presenters will be announced after the call for papers closes. Invited speakers and keynote speakers will be announced.

The conference will cover two-and-a-half days and will be preceded by two days of training seminars and short courses.

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IBPSA-USA is the United States regional affiliate of the International Building Performance Simulation Association (IBPSA). The mission of IBPSA-USA is to advance and promote the science of building simulation in order to improve the design, construction, operation and maintenance of new and existing buildings in the United States.

Do You Know Your ASHRAE REGION I Chapters?

ASHRAE has 14 Regions that reach virtually into the entire world. Vermont is in Region I which has 15 chapters from Maine to New Jersey.

Boston	Boston, MA
Rhode Island	Providence, RI
Connecticut	Hartford, CT
Long Island	Garden City, NY
New Jersey	Newark, NJ
New York	New York, NY
Northeast	Albany, NY
Central New York	Syracuse, NY
Rochester	Rochester, NY
Niagara Frontier	Buffalo, NY
Champlain Valley	Burlington, VT
Maine	Lewiston, ME
Twin Tiers	Owego, NY
Bi-State	White Plains, NY
Granite State	Manchester, NH

REFLECTIONS ON 45 YEARS OF ASHRAE CVC

On January 15, 2015 our chapter invited all past presidents of the Champlain Valley Chapter of ASHRAE to recognize our 45th year as an ASHRAE chapter. Of the 45 past presidents, 22 were able to attend this event along with 51 people including wives, friends, and members to reflect on this milestone and reacquaint with old friends and current members of the chapter.

"Twenty-two past CVC Presidents pose with ASHRAE President Tom Phoenix and Region 1 DRC Joe Furman, on January 15, 2015, in recognition of the 45th anniversary of the Champlain Valley Chapter."

We learned from William "Bill" Lotz that the Champlain Valley Chapter (CVC) was born from a group discussion of individuals who as ASHRAE members discussed alternative means to participate in ASHRAE without making the 3-1/2 drive to Boston, our designated chapter at the time. Why not start our own local chapter?

Bill Lotz was the first president of ASHRAE CVC for the 1969-1970 calendar year, when much of the organizational planning was accomplished. On October 2, 1970 the Champlain Valley Chapter of ASHRAE was chartered with ASHRAE National President W. Hole, Montreal Chapter President P. Gaudette and over 150 people in attendance. Forty-five years later it remains an active and relevant group committed to serving Vermont's ASHRAE membership.

We were delighted and privileged to be joined by current Society President Tom Phoenix, PE and Region 1 Director and Chair, Joe Thurman to celebrate this milestone event.

ASHRAE CVC: Membership and Volunteerism Strength

Tom graciously volunteered (don't we all) to be our featured speaker for the evening presenting his presidential theme for the year. Tom's presidential theme focused on three areas of ensuring ASHRAE's success: People, Passion and Performance, which was well suited for this occasion.

People – Key Factor #1: ASHRAE's greatest assets are the volunteers who have the biggest impact. Of the 54,000 members worldwide, those

who invest their time, energy, and talent make ASHRAE a premier engineering organization. Volunteers will continue to build the Society into a more viable and innovative organization into the future. As it pertains to the success of ASHRAE, both nationally and internationally, the success of local chapters like Champlain Valley will be determined by the continued engagement and growth of the engineers, design professionals, facility personnel, contractors, manufacturers and vendor representatives that make up our membership (currently 130 strong) and serve the Vermont community. Most importantly the volunteers who actively contribute and serve as officers, board members and chairs determine the continued existence of the chapter planning the monthly educational and technical programs of speakers, presenters and social events contributing to future success and accomplishments for CVC. We are grateful to have a committed group of employers and vendor companies that actively support their employees who participate in the operation of the Champlain Valley Chapter of ASHRAE in terms of time commitment and willingness to provide financial support for the chapter and its fund-raising activities.

Passion – Key Factor #2: Individuals throughout society commit their time and energy to causes and organizations they perceive to be valuable and worthwhile. It is this belief to actively contribute and participate we call 'passion", a motivating factor to persevere through issues which initially may seem daunting or unsolvable yet some inner energy of purpose keeps small groups of people working together to accomplish a goal or mission. Borrowing a statement from businessman, motivational speaker and president of High Point University, Dr. Nido Qubein, "Passion ignites energy. Energy ignites a purpose. Having a purpose leads to success. But nothing happens unless there is passion." (ASHRAE Journal August 2014)

I would venture to say there was not a past CVC president who did not experience this "passion" of group purpose and energy at some point during their tenure. Whether planning a roster of topics and presenters to engage membership to attend our monthly meetings or an educational seminar, soliciting funds for chapter events, planning a CRC, funding our two scholarship funds or ASHRAE Research Promotion, passion was evident. My experience shows this passion is built from a comradery developed among our volunteers where everyone is willing to help each other because as volunteers we recognize our time is limited. I suspect our membership has experienced this "passion" in their professional, family or community life whether as a member of a building design team working through the process of sorting through the many options and alternatives for selecting an HVAC system, maintaining a budget and time constraints that a construction team muddles through towards providing a client with the most energy efficient, aesthetic, healthy and quality building. In the end a well-deserved feeling of accomplishment and satisfaction is felt from all our efforts.

Performance – Key Factor #3: Measurement either quantified or qualified, or extent of achievement towards accomplishing a goal, mission or outcome. Per Tom's discussion ASHRAE performance has many meanings: the performance of our volunteers and staff to meet members' expectations; the performance of

the buildings we design, construct and operate to meet our clients' expectations; and the performance of our Society. Tom indicated the Society had recently adopted a new strategic plan defining what we want and hope to accomplish going forward. Building performance will remain as one of the top driving forces in the HVAC industry and has been and will continue to be one of ASHRAE's priorities for many years. Our existing standards and guidelines are regularly updated as research and new information is provided and acted upon as well as the development of new standards for the industry as new challenges and needs surface or are identified.

Given that the Champlain Valley Chapter has remained relevant is an indication that the performance of our past presidents and volunteers over the past 45 years is a testament to outstanding performance.

A Historical Backdrop of the Energy Challenge Through the Chapter's Existence

So let's take a look back over the previous 45 years as we initiate our third generation of local ASHRAE leaders of the Champlain Valley Chapter. Following is a reflection of what has been established and accomplished by the chapter and where we have been and where we are going. When CVC was chartered in March 1970, Richard M. Nixon was President of the United States, and the nation was deeply involved in the Vietnam War, the country was experiencing political tensions and stress at home through racial issues, an anti-war movement and a point of national pride, the NASA space program landed the first humans on the moon.

A 45 Year Timeline (1969-2014) History of Alternative Energy and Fossil Fuels

Jan. 1969	Santa Barbara Oil Spill Draws National Attention
1970s	Solar Cells Begin to Lower in Price & Become Cost Effective for Use on Land ($100/W to $20/w)
1970	Oil Production Peaks in Lower 48 states (9.4 million bbl/day)
1973	OPEC Oil Embargo Against the US Causes Gas Shortages and Rationing
Nov. 1973	Trans-Alaska Pipeline Authorization Act of 1973 Passed to Increase Domestic Oil Supplies in Wake of Oil Embargo
1975	Corporate Average Fuel Economy (CAFÉ) Standards Set by the Energy Policy Conservation Act
Dec. 1975	Formation of the Strategic Petroleum Reserve; President Ford Signs into Law the Energy Policy & Conservation Act
1977	Formation of the Solar Energy Research Institute (SERI)
Apr. 1977	President Carter Delivers Famous Energy Speech Arguing for Conservation and Alternative Fuels
Aug. 1977	Department of Energy Organization Act is Signed, creating the US Department of Energy
1978	World's First Solar-Powered Village; Tohono O'odham Reservation, Arizona
Nov. 1978	Solar Photovoltaic Energy Research, Development, and Demonstration Act of 1978
Mar. 1979	Three Mile Island Nuclear Accident in Pennsylvania Creates Widespread Public Opposition to Nuclear Power
Dec. 1980	World's First Wind Farm Built in New Hampshire; 20 Turbines Rated 30KW each at Crotched Mountain (It Failed)
1981	Solar One: First Large Scale Solar -Thermal Power Plant Begins Operation in Dagett, California (produced 10 MW of Electricity from 1982-1986)
1981	Construction Begins on the World's Largest Wind Farm in California's Altamont Pass; Bird Deaths from Wind Turbines (~4,700 Bird Deaths/Yr.); 4800 Small Turbines w/Capacity of 576MW, Generating About 1.1 Terawatt-hrs of Electricity;
1982	First Complete Decontamination and Decommissioning of a Nuclear Reactor in the US (Shippingport)
Apr. 1986	Largest Nuclear Accident Ever Takes Place at Chernobyl in the Former Soviet Union
Mar. 1989	Exxon Valdez Disaster in Alaska Becomes the Largest Oil Spill in US Waters (11 million Gallons Released into Environment)
Jan. 1990	Congress Passes Act to Stimulate Development of Hydrogen Power
1994	US Begins Importing More Petroleum Than It Produces
Apr. 1996	Solar Two Plant (10MW) Demonstrates Low Cost Method of Storing Solar Energy - Built On Site of Its Predecessor Solar One
1997	EV1 Electric Car is Made Available to the Public For Lease; Lease Program EV1 Later Dismantled by GM; About 1000 Produced Before Plug Pulled Due to Insufficient Demand
Feb. 2003	President Bush Unveils the Hydrogen Fuel Initiative to Promote Hydrogen Fuel Cell Development

The one dominating and persistent theme since the inception of our chapter and the following 45 years as well as ASHRAE as a whole could be termed the "Era of Energy Consciousness" and the challenge to address this dominant issue. To the left is a timeline of energy-related events which have occurred since CVC became an ASHRAE chapter. It illustrates a story of progress, setbacks, disasters and optimism highlighting that the journey is never a straight forward experience and the great challenges nations undertake should have tempered expectations of the speed which accomplishment can be achieved.

In 1973, the Organization of the Petroleum Exporting Countries (OPEC) implemented an oil embargo in retaliation for a US decision to re-supply the Israeli military during the 1973 Arab-Israeli War to gain leverage to the post war peace negotiations. Our re-supply actions were in response to Soviet Union sending arms to Egypt and Syria. The embargo banned petroleum exports to targeted nations including the US and cut oil production. The United States post WWII economy and its prosperity had thrived on cheap energy (mainly oil) at that time oil prices were declining as world oil production was increasing. However our consumption was out pacing national production so we were becoming more reliant on foreign oil. The 1973 embargo severely strained the US economy. Due to the increased dependence on foreign supplies of oil began a rapid trajectory increase in oil prices leading to a national oil shortage. The 1973 oil embargo brought attention to America's energy demand and vulnerability to supply disruptions. This shortage was illustrated in Photographs of the time of motorists lined up at gas stations to

Timeline Continued

Feb. 2003	Plans Announced to Build FutureGen, the World's First Zero Emissions Coal Power Plant
Nov. 2005	US House Prevents Drilling for Oil in the Arctic National Wildlife Refuge
Nov. 2007	IPCC Report Concludes Climate Change is Happening and is Mostly Human Caused
Feb. 2008	First Commercial Cellulosic Ethanol Plant Goes into Production in Wyoming
Oct. 2008	National Biofuel Action Plan Unveiled; Goal to Cut US Gasoline Consumption by 20% Over the Next 10 Years
Feb. 2009	American Recovery and Reinvestment Act of 2009 Contains Billions of Dollars for Renewable Energy and Energy Efficiency Developments
Apr. 2009	First Framework for Wind Energy Development on the US Outer Continental Shelf Announced
May 2009	US Announces $467 Million in Recovery Act Funding for Solar Energy and Geothermal Energy Development
Oct. 2009	US Invests $3.4 Billion to Modernize Energy Grid (to be Matched by Industry for a Total Public-Private Investment Over $8 Billion)
Oct. 2010	BP Oil Rig Explodes & Causes Largest Oil Spill in US History (Estimates of 30 Million Gallons Released; Surpasses Exxon Valdez by 3 Times)
Mar. 2011	Earthquake Off Coast of Japan Damages Six Power Plants at Fukushima Dai-ichi: Nuclear Crisis Eventually Reaches Level 7, the Highest Level Possible
Sept. 2011	Solar Power Company Solyndra Declares Bankruptcy After Receiving $528 Million in Federal Loan Guarantees (also $1 Billion in Private Capital)
Feb. 2012	US Nuclear Regulatory Commission (NRC) Approves New Nuclear Power Plants for First Time Since 1978; Two Reactors to be Built in Georgia
Mar. 2012	EPA Announces First Clean Air Act Standard for Carbon Pollution from New Power Plants (New Rule Proposes all New Fossil Fuel Plants Meet Output-Based Standard of 1,000 lbs of CO2 Per Megawatt Hr.)
Apr. 2012	EPA Issues First Ever Clean Air Rules for Natural Gas Produced by Fracking
June 2013	President Obama Releases His Climate Change Action Plan Including Increased Use of Renewable Energy and Carbon Pollution Restrictions for Power Plants
Sept. 2013	EPA Issues New Proposed Rules to Cut Greenhouse Emissions from Power Plants
Feb. 2014	Ivanpah, the World's Largest Concentrated Solar Power Generation Plant, Goes Online; Mojave Desert, CA., 392MW
June 2014	EPA Proposes First Ever Rules to Reduce Carbon Emissions from Existing Power Plants (Goal to Cut CO2 Emissions by 30% by 2030, Compared to 2005)
Sept. 2014	Rockefellers and Over 800 Global Investors Announce Fossil Fuel Divestment (Investors Have Pledged to Withdraw a Total of $50 Billion from Fossil Fuel Investments Over the Next Five Years)

ProCon.org (2013, June 13). Historical Timeline. Annotated from http://alternativeenergy.procon.org/view.timeline.php?timelineID=000015

buy gasoline. The average car mileage in 1970 was only 13.5 mpg and one gallon of gas at the pump was less than a quarter.

This began new US policy measures towards energy conservation and efficiency in concert with development of domestic energy sources. Early responses were focused on boosting production and voluntary measures to promote energy conservation. Faced with price hikes increasing from $3 to $12 per barrel practically overnight; national leaders called for measures to conserve energy by imposing gas rationing and closing gas stations on Sunday. Lasting impacts of these policy measures include price controls (regulation), national speed limits, creation of strategic petroleum reserve, Energy Policy and Conservation Act of 1975, creation of the Department of Energy (1977) and many government funded projects and research in alternative fuel development, alternative sources of power like wind, solar and nuclear in addition to energy conservation.

Historical trends converged in the 1970's can be seen as a turning point towards an ongoing transition from fossil fuels. We have made gains in some areas but have experienced no gains in other areas. Today, roughly 50% of electrical generation is still dominated by coal, oil still drives transportation and both coal and oil remain lower in price compared to alternatives. An ongoing battle in policy decision making of competing interests between public ownership of resources and the regulated commerce of these resources by private interests which were given the right to extract, process into products and services for profit. Our mix of energy resources changes over time slowly as we have to wait for technological breakthroughs, innovation, entrepreneurial vision and consumer demand to change the marketplace. However this political clash in determining the level of private/public control over energy resources results in a political gridlock in sound decision making at a time when it is needed most.

In his book, Collapse, How Societies Choose to Fail or Succeed, Jared Diamond claims a society's response to its problems depends on its political, economic and social institutions and cultural values and are significant factors affecting whether that society solves (or attempts to solve) its problems. We have to ask ourselves: Are we ready to acknowledge the seriousness of the environmental problems facing us? If the answer is "yes" it will require the courage to practice long term thinking and make courageous and anticipatory decisions to address the problems before they reach crisis proportions.

An unanticipated benefit of the energy crisis and ensuing energy conservation movement was the birth of environmental awareness as US citizens and the world began to think about energy differently including energy conservation, carbon footprint and public health (pollution, smog, CO2 build-up) that are still be related and forthright in our thinking today. The energy crisis has allowed the developed countries the benefit of getting a head start addressing climate change by decreasing carbon emissions as a result of energy conservation and efficiency measures undertaken. Prior to 1973 US carbon emissions were growing at 4.5% annually, since then only at O.4% annually, a significant reduction. It goes without saying that current emissions are still unsustainably high and need drastic reductions to avoid the long term serious effects of climate

change.

Reflecting back on the last 45 years should provide us optimism that technological solutions to global environmental problems can be a factor in addressing climate change, that government research support can yield payoffs, bipartisan action on national/global environmental problems can be achieved when directed at people's economic decision making.

Over the last 45 years, accounting for over 400 CVC sponsored presentations, workshops, seminars and building tours, topics other than energy conservation and efficiency measures included indoor air quality concerns due to tighter buildings, the phase-out of CFC based refrigerants towards more environmental friendly and natural refrigerants to address the depletion of the ozone layer as examples. Our Engineers and designers have had to become familiar with, adopt, comply with and utilize energy codes and standards which were developed for the industry by ASHRAE and others in response to the challenges of energy awareness. Many programs presented topics introducing new technologies like air and water source heat pumps, air to air heat exchangers, heat recovery equipment, condensing boilers, economizers, evolution of ATC controls from pneumatics to DDC and energy management systems. We have recently seen an emphasis on higher insulated building envelopes and high efficiency windows in response to high performance and net zero building trends. We have experienced the emergence of variable speed drives for pumps and fans, the application of systems like VAV, DOAS, radiant heating and cooling, and VRF as common practice. The introduction and application of the next generation of renewable energy systems such as solar, wind and biomass is becoming accepted and applied within the industry. The implementation of building and HVAC and lighting systems commissioning to align design intent with ensuring operational performance and maintainability during and upon completion of construction is becoming standard practice for most of the larger commercial and institutional buildings. Recently building labeling, benchmarking of energy performance and energy utilization has become a focus of ASHRAE. Again this illustrates over the entire spectrum of monthly topics the primary focus of ASHRAE CVC has been in response to the energy challenge and accompanying environmental awareness evolving from the 1973 oil embargo.

A Non-Inclusive List of Topics That We Can Look Forward To Keep Our Attention

- Buildings account for 40% of the nation's CO2 emissions per the US Department of Energy. To reduce the building sector's impact on climate will require bringing current building practices up to the level of best practices for significant energy and cost savings in particular applying to the nations' existing building stock. Best practices should be applied to existing buildings when significant upgrades, additions and renovations are planned. Specific focus should be on space heating, ventilation, air conditioning, lighting and domestic water heating as well as building envelope and windows as opportunities arise. Bringing the existing building stock up to best practices will be a challenging

and long term process as our economic system does not account or plan for obsolescence very well but represents a significant market to address reducing CO2 emissions and impact of climate change. It has been reported that new building construction will only account for about 10% of the nation's building stock between now and 2050 showing that 90% of the nation's building stock is already in place and operating inefficiently in terms of energy use.

- An integrated and holistic design approach between engineering and architecture taking into account of building operations, green building concepts, durable, sustainable, efficient and recyclable materials and equipment manufactured locally when available. To introduce and apply alternative energy systems. This process involves all building professionals, and interested parties to share their experience and bringing their knowledge to the table in the development of a building design and to justify the multiple choices of equipment, systems and product selections. Decisions need to be sound in principle and appropriate to the application under consideration utilizing modern software tools like energy modeling and energy savings analysis programs.

- Increased application of on-site power generation using renewable energy sources interfaced with the electric grid preferably using local, sustainable and obtainable energy sources.

- Alternative urban design, land use planning and utilization (compactness and mixed use) to accomplish the following: (1) reduce vehicle miles traveled (2) reduced space conditioning thru the use of integrated design approaches and district heating and cooling systems (3) reduce municipal infrastructure requirements.

- Increased awareness on the efficient use of natural resources, waste reduction, energy supplies, energy efficient appliances Indoor air quality (IAQ), water conservation, occupant health and productivity.

- Development and usage of energy labeling and rating programs as well as building energy use metrics will continue to evolve and be refined to provide a necessary performance data collection and documentation procedure to create a usable database for benchmarking purposes (like ASHRAE BeQ).

- Continue the trend to incorporate smart self- learning ATC and the measurement of performance relative to building type/ classification, occupancy and weather conditions with the goal of minimizing energy consumption and wear and tear on equipment. Other features emerging from DDC based controllers are self- diagnostic programs, fault conditions, remote access for diagnosis and control functionality checkouts and wireless technology.

- Sustainability has been recently introduced and will continue to dominate the conversation which requires an

understanding and awareness of the availability of our natural resources such as water, air, energy, minerals, forests, fisheries etc. so as to provide for the needs of the present without compromising the ability of future generations to fulfill their needs.

- The LEED process has allowed us to explore optimum solutions in terms of cost of energy and materials, functionality, and which technologies are considered and appropriate for specific applications (building types and occupancy). Recently constructed LEED high performance and emerging net zero buildings are giving us an abundance of examples to showcase the benefits and features of sustainable design to the public while reinforcing and rewarding the creativity of the design professional.

ASHRAE as a professional society will continue to share its knowledge, contributing to the knowledge base and literature of the HVAC field, be active in supporting and conducting HVAC research, writing new and updating existing industry standards, and encouraging and supporting students to pursue engineering.

Professional development and education on timely subjects and the sharing of knowledge amongst ourselves and the monthly social comradery will remain the main objective of chapter activities. ASHRAE will continue to be the foremost technical resource and purveyor of educational information for the professional growth of its members to assist in their daily professional activities. The Champlain Valley

ASHRAE Champlain Valley Chapter

ACHIEVEMENTS 1969 - 2015

Chartered as an ASHRAE Chapter on October 2, 1970

Champlain Valley Chapter hosted four Chapter Regional Conferences (CRC's):

- Stowe – September 20 – 21, 1973
- Burlington – August 14 – 16, 1986
- Burlington – August 10 – 12, 2000
- Burlington – August 15 – 17, 2013

Individual ASHRAE Recognitions of Note

- Joe Canavan became the first CVC Chapter member to become an ASHRAE Life Member, November 1973
- Gordon W. Root, Sr., PE awarded ASHRAE grade of Fellow at 1994 Winter Meeting in New Orleans
- Gus Mastro was elected and serves as Region 1 Director and Chair (DRC) from 1996-2000
- Region 1 Golden Gavel Award Winners
- Edward E. Pearson, PE, CVC President 1990-1991
- Michael Rose, CVC President 1997-1998
- Tom Zoller, PE, CVC President 2004-2005
- Bill Atkinson, PE, CVC President 2005-2006
- Thomas F. Dacres, Jr., CVC President 2012-2013

Accomplishments of Note

More women work in HVAC engineering and affiliated professions and three women have served as CVC Chapter President.

- Lois Root , CVC President 1986-1987
- Amy (Cota) Patenaude, PE, CVC President 2002-2003
- Heather (Condon) Smith, CVC President 2008-2009

Vermont Technical College Student Chapter formed 1995-1996

It should be noted that several VTC Student Chapter members later joined the CVC and served as Presidents. These are:

- Russ Pratt , CVC President 2001-2002
- Amy (Cota) Patenaude, PE, CVC President 2002-2003
- David Anderson, CVC President 2003-2004

VTC students have regularly participated in the annual ASHRAE Student Design Competition against other US colleges and universities. VTC has been awarded Region 1 Best Student Design several times.

CVC Newsletter "The Champ" was first published September 1988 to keep members informed of news and events. Coincidentally the newsletter won its first Region 1 Black Ink award its first year thanks to the efforts of the Roots'. The newsletter has been published electronically for the last decade and continues to be recognized and awarded Black Ink awards.

PAOE Accomplishments

Individuals throughout the years have been recognized and awarded for their PAOE accomplishments while serving as Chapter Chairs of various functions of operations.

Chapter is committed to offer programs that are relevant, timely and educational to keep our membership engaged, informed and involved.

If the last 45 years was the era of energy consciousness and addressing the challenge through energy conservation measures; hopefully the next 40 to 50 years of continued ASHRAE leadership and involvement will not only continue a transition from fossil fuels to renewables but aspire us to transform how we design, construct and operate (maintain) our built environment especially as applied to building energy systems. If the past is any indication I believe that ASHRAE and the Champlain Valley Chapter will be enthusiastic, engaged and informed participants.

The Champlain Valley Chapter will continue to support the *"ASHRAE mission is to advance the arts and sciences of heating, ventilation, air conditioning, and refrigeration to serve humanity and promote a sustainable world."*

The foundation of this article is a compilation of material gathered from Champlain Valley Chapter, end of year summaries and ASHRAE Society publications including the ASHRAE Journal and other sources where necessary for historical perspective and the personal observations of the author of this article.

Submitted by
Michael R. Cook
CVC Historian, 2015

... advertising/sponsors continued on page 32

ASHRAE CHAMPLAIN VALLEY CHAPTER PAST PRESIDENTS RECOGNITION PAGE

Order	Society Year Served	Name	Order	Society Year Served	Name
1	1969-70	William Lotz, PE	25	1993-94	Jon A. Soter, PE
2	1970-71	Robert Miller	26	1994-95	Leo Ioannou
3	1971-72	Richard Bowler Jr., PE	27	1995-96	Michael A. Gallo, PE
4	1972-73	Robert Coughlin	28	1996-97	Steve Poole
5	1973-74	Don Johnson	29	1997-98	Michael Rose
6	1974-75	Gordon W. Root, Sr., PE	30	1998-99	Leo Ioannou
7	1975-76	Jack Couture, PE	31	1999-2000	Ken Couture
8	1976-77	Giustino N. Mastro, PE	32	2000-01	Peter Tousley
9	1977-78	Neil Vallencourt, PE	33	2001-02	Russ Pratt, PE
10	1978-79	William Moore, PE	34	2002-03	Amy (Cota) Patenaude. PE
11	1979-80	Oscar Blatchly, PE	35	2003-04	David Anderson
12	1980-81	Stuart N. King	36	2004-05	Tom Zoller, PE
13	1981-82	Andrew Rudin, PE	37	2005-06	Bill Atkinson, PE
14	1982-83	Ted Meade, PE	38	2006-07	Jay Pilliod
15	1983-84	William A. Fyfe, PE	39	2007-08	Jerry Chabot, PE
16	1984-85	Edward Seraydarin	40	2008-09	Heather Condon
17	1985-86	Roger M. Kerr	41	2009-10	Peter F. Bailey
18	1986-87	Lois Root	42	2010-11	Shawn LaBelle, PE
19	1987-88	Mike Poirer	43	2011-12	Michael R. Cook
20	1988-89	Thomas Wolfstitch	44	2012-13	Thomas F. Dacres, Jr.
21	1989-90	Bernard J. Young	45	2013-14	Nathan Mascolino, PE
22	1990-91	Edward E. Pearson, PE	46	2014-15	Robert J. Favali
23	1991-92	Gordon W. Root, Jr., PE	47	2015-16	Rob Ward
24	1992-93	Richard J. Wilcox			

Chapter Past Presidents with Tom Phoenix & Joe Furman

NOV. 2015
Vol.30 No. 3

Mission Statement

ASHRAE will advance the arts and sciences of heating, ventilation, air conditioning, refrigeration and related human factors to serve the evolving needs of the public and ASHRAE members.

Vision Statement

ASHRAE

~ Will be the global leader in the arts and sciences of heading, ventilation, air conditioning & refrigeration.

~ Will be the foremost, authoritative, timely and responsive source of technical and educational information, standards and guidelines.

~ Will be the primary provider of opportunity for professional growth, recognizing and adapting to changing demographics, and embracing diversity.

PRESIDENTIAL AWARD OF EXCELLENCE TOTALS

Presidential Award of Excellence (PAOE) is the point system ASHRAE Region and Society use to help track the Chapter's activities. The chapter gets points in the below categories for activities that we do throughout the year. The awards banner that you see at the meetings represents CVC's accomplishments over the years. Below are definitions of what some of those awards are. If you want to know more about PAOE check out the www.ashrae.org website and do a search for the PAOE newsletter.

End of Year Awards Available to the Chapter:

PAOE: Minimum in five of the six categories

Special Citation: Minimum in 5 of the 6 categories with a minimum total of 4600 points

STAR: PAR in all categories

Honor Roll: PAOE for at least 4 consecutive years

High Honor Roll: STAR for at least 4 consecutive years

Premier: PAOE every year since the chapter's inception or since 1970; minimum of 4 years; chapter's first year is excluded

Sustainability Activities Award: A Chapter Sustainability Award in the form of a certificate is available for each chapter that obtains a total of at least 200 points from the items listed under Sustainability Activities in the Chapter Operations category of PAOE. The Chapter with the highest PAOE Sustainability point total will receive a Regional award in the form of a glass plaque and a certificate.Level 1 = less than 100 members; Level 2 = 100-249, Level 3 = 250-449, Level 4 = 500 or more.

Category	PAR	2015 - 2016
Membership Promotion	800	0
Student Activities	500	0
Technology Transfer	1050	0
Research & Promotion	1050	0
History	300	0
Grassroots Government Activities	650	0
Chapter Operations	1050	0
Chapter TOTAL	**5400**	**0**

GENERAL MEETING

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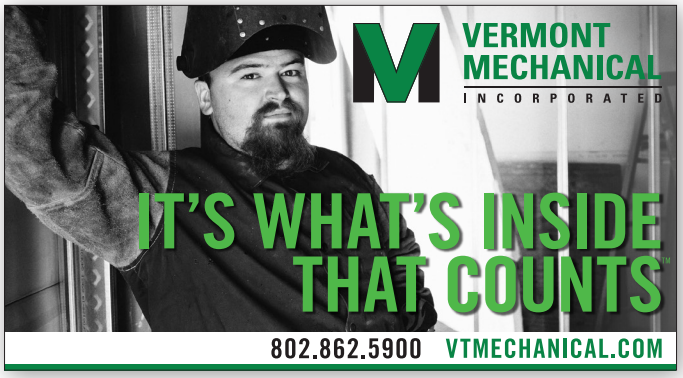
Richard Wilcox, LEED AP T: (802) 655-8805 x 181 dwilcox@vhv.com	Shawn LaBelle T: 802-857-5011shawn. ShawnL@amivt.com
Rachael Mascolino T: 802-540-7846 rmascolino@veic.org	Robert J. Favali, LEED Green Associate T: 802- 764-2704 rfavali@dubois-king.com
Nathan Mascolino T: 802-861-6148 nathanm@vhv.com	

2015-2016 CHAPTER OFFICERS	
President	Robert Ward III, LEED AP 802-861- 6194 | robw@vhv.com
President-Elect	Blaine Connor 802-264-1134 | blaine.conner@vtmechanical.com
Vice President	Brent Weigel phone# | email
Secretary	Martha Soule (802) 655-8805 | email
Treasurer	Jeremiah Trombly 802-862-6199 | jtrombly@masvt.com

COMMITTEE CHAIRPERSONS	
Student Activities	Brent Weigel
Membership	Martha Soule (802) 655-8805 | email
Resource Promotion	Tom Zoller 802- 861-6194 | robw@vhv.com
Technology Transfer	Blaine Connor 802-264-1134 | blaine.conner@vtmechanical.com
Refrigeration	Peter Bailey 802-434-2278 | pfbailey@deicontrols.com
Historian	Mike Cook 802-291-0911 | mcook@arcmech.com
Electronic Communications	Rachael Mascolino 802-540-7846 | rmascolino@veic.org
Grassroots Gov't Activities	Richard Wilcox, LEED AP T: (802) 655-8805 x 181 | dwilcox@vhv.com
Honors and Awards	Thomas Dacres, Jr., LEED AP BD+C T: (802) 861-6152 | tomd@vhv.com

Subscription to the newsletter and membership questions should be directed to Joshua Chiappone (518) 817-8669 or joshua.j.chiappone@jci.com



VHV Vermont Heating & Ventilating
A Mechanical Company

Thomas F. Dacres, Jr.
Design Engineer
tomd@vhv.com

16 Tigan St., Suite A, Winooski, VT 05404
802.655.8805 phone
ext. 152
802.655.8809 fax

Tom Zoller PE
Account Manager

TRANE

175 Leroy Road
Williston VT 05495
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