

**The**



# **Tumbleweed**

<http://www.midcolumbia.ashraechapters.org>

## ***Don't Miss This Month's Event***

April 11, 2006

**Wireless Sensors for  
Building Operations:  
What Are the Opportuni-  
ties?**

**Michael Kintner-Meyer,  
PNNL**

*Details on page 3*

## **Specification Enforcement Affects You....**

Traci Hanegan, P.E., LEED AP, led a lively discussion on Specification Enforcement and how it affects our work as engineers, contractors, architects, and others in the HVAC industry. The event was held on March 15, 2006 at the Bamboo Garden where 20 attendees shared a family style feast. Her objective was to "bring hope" that specifications can provide the best outcome for the owner, the engineer and the contractor. We all concluded that our goal is to develop more trust in each other. As engineers, we can make the job go easier for all parties.

(see Pages 5 and 6 for the official notes from the meeting discussion)



Traci Hanegan presented at Mid Columbia Chapter Monthly Meeting.



ASHRAE President Lee Burgett led off the evening meeting with a presentation on the lessons he has learned from his travels around the World.

### **Inside this issue:**

Message from the President	2
From the Summit	2
This Month's Event	3
Program Calendar (2005-2006)	3
Mid Columbia ASHRAE Board and Committee Chairs	4
Future ASHRAE Meeting Dates	4

## **Mid Columbia Chapter Will Host ASHRAE's Satellite Broadcast on**

### ***SUSTAINABILITY AND THE BUILDING ENVIRONMENT***

Wednesday, April 19, 2006  
10:00 a.m. – 1:00 p.m. PDT

WSU-Tri Cities Campus  
Consolidated Information Center  
Room 216

(Free to the Public)



*Chapter President Dale Green*

## Message from the President

This year for ASHRAE is rapidly ending. I hope that the programs provided at our meetings have been informative for you. I would like to thank Bing Liu for all of her efforts in setting up speakers and meals for our meetings.

Our regions Chapter Regional Conference (CRC) will be held in Victoria BC, Canada on May 10<sup>th</sup> – 13<sup>th</sup>, 2006. You can find more information on the CRC and register at the Region XI portion of the ASHRAE website or at <http://www.ashrae.bc.ca/vi/crc2006.htm>

It is time to elect next years officers for the Mid Columbia Chapter. You should have already received an e-mail with the nominations for next

years officers and a sample ballot. The election will take place at our April 11 meeting at the Richland Library. Ballots will be collected at the meeting. If you cannot attend the meeting to cast your ballot and would still like to vote, please print the ballot you received in the e-mail and mail it to me at the address below. Please make sure that you sign the ballot before returning it. All ballots returned by mail must be received before April 11.

The presentation at this month's meeting will be on wireless sensors and controls. I hope to see you all there.

Dale



*Mr. Ron Jamagin  
ASHRAE Vice President*

## From The Summit: Members Sought to Advise Design Team for Headquarters Renovation

By Ron Jamagin, ASHRAE Vice President

In last month's article I updated you on the ASHRAE Board launching an effort to renovate the ASHRAE headquarters building. Now I'd like to let you know about opportunities available for members to provide input to the renovation process. We have established two paths for input into the process: (1) a website where members can provide direct input, and (2) an advisory committee of individual with focused expertise in the relevant aspects of the renovation project.

The website offers the easiest access for the individual member. The website is available off of the main ASHRAE website ([www.ashrae.org](http://www.ashrae.org)) through a link to the "ASHRAE Headquarters Renovation - Walking the Talk." There ASHRAE members will be able to select a link to a suggestion form that allows the member to enter electronic information on their ideas. In addition, the website contains additional information on the renovation project that may be of interest to you. You can find plans for the headquarters building as well as information on its condition and its energy use. If you plan to provide input, please do so by May 1, 2006 as that is the deadline for

input to the schematic design phase of the project.

An additional path for input will be through an advisory committee made up of a chair (myself) and eight subject matter experts. These experts have been solicited from ASHRAE's Technical and Standards project committees and will help to provide additional input to the design team as well as helping to sort and prioritize the input received through the website. Each of the members of the advisory committee will be strongly encouraged to form a subcommittee of interested persons to help them in their duties. The areas of expertise have been divided into Building Systems, Building Performance, and Post Occupancy.

Please help us make this headquarters renovation a great success by contributing your ideas to the process. I know I can count on the great spirit of ASHRAE volunteerism to ensure that we have plenty of quality input!



**ASHRAE Express Membership Application is available at [www.ashrae.org](http://www.ashrae.org).**

**Join the 50,000 ASHRAE members advancing their careers through an ASHRAE membership.**

## This Month's Event

Tuesday, April 11, 2006

# Wireless Sensors for Building Operations: What Are the Opportunities?

By Dr. Michael Kintner-Meyer,  
Senior Staff Engineer  
Pacific Northwest National Laboratory



The rapid maturity of everyday wireless technologies has had a tremendous impact on our ability to collect information from the physical world. There are tremendous opportunities in using wireless technologies in sensors and controls for building operation. The key promise of wireless technology in building operation is to reduce the cost of installing data acquisition and control systems. Installation costs typically represent 20% to 80% of the cost of a sensor and control point in an heating, ventilation, and air-conditioning (HVAC) system – reducing or eliminating the cost of installation has a dramatic effect on the overall installed system cost.

This presentation characterizes commercially available wireless technologies that are already being used in buildings applications and that are suitable for use in commercial buildings. Discussed will be two demonstration projects of wireless sensors and their integration into existing control networks.

As senior staff engineer in Pacific Northwest National Lab, Michael Kintner-Meyer has a strong reputation with expertise in the field of wireless technologies. He is also a member of ASHRAE Technical Committee. He is currently serving as chair of a Project Monitoring Subcommittee for an ASHRAE research project titled: Interactions Between Dynamic Electric Rates and Thermal Energy Storage Control.

**Location:** Richland Library, Doris Roberts Gallery, 955 Northgate Drive, Richland

**Date:** Tuesday, April 11, 2006

**Time**

6:00 - 6:30 pm	Social Time
6:30 - 7:00 pm	Dinner
7:00 - 8:00 pm	Program

**Cost:** \$15.00 Dinner and Program (Italian Pasta Bar); \$3.00 Program Only  
Program attendance is free for students. Student dinner cost is \$10.00

**RSVP:** Lois Payne at (509) 373-2259 or lois\_payne@rl.gov  
No Later Than 1:00 PM, Monday, April 10, 2006

\*A reservation made is a reservation paid.

## Program Calendar (2005–2006)

Mark your calendars for the following upcoming events:

### 2005

**Sep. 13, 2005:** Condenser Water Heat Recovery, Julian de Bullet, McQuay International

**Oct. 18, 2005:** Global Warming, Victor Goldschmidt, ASHRAE Distinguished Lecturer

**Oct. 26, 2005:** USGBC LEED and Green Building Workshop

**Nov. 9, 2005:** Innovative Air-side Systems Designed to Conform to ASHRAE 90.1 and Improve IAQ, Evans Lizardos, ASHRAE Distinguished Lecturer

**Dec. 13, 2005:** Battelle Research Campus Update, Mike Lawrence, PNNL Deputy Director

### 2006

**Jan. 10, 2006:** Building commissioning and retro-commissioning, Janice Peterson, Green Building Services in Portland

**Feb. 24, 2006:** National Engineers' Week Banquet

**March 15, 2006:** ASHRAE President Lee Burgett's visit; Specifications Round Table, Traci Hanegan

**April 11, 2006:** Wireless Sensors for building operations: What are the opportunities? Michael Kintner-Meyer, PNNL

**April 19, 2006:** ASHRAE Satellite Broadcast on Green Buildings; WSU-TC

**May 16, 2006:** Best Practice of O&M, Greg Sullivan, PNNL

## Mid-Columbia ASHRAE Chapter

### 2005-2006 Officers/ BOG

President (509) 735-1589	Dale Green <a href="mailto:degreen@meierinc.com">degreen@meierinc.com</a>
President Elect (509) 375-3710	Bing Liu <a href="mailto:bing.liu@pnl.gov">bing.liu@pnl.gov</a>
Secretary (509) 373-2259	Lois Payne <a href="mailto:lois_payne@rl.gov">lois_payne@rl.gov</a>
Treasurer (509) 735-1589	Jay Ashbaugh <a href="mailto:jpashbaugh@meierinc.com">jpashbaugh@meierinc.com</a>
BOG Member at Large (509) 527-7540	Carl Brenneise <a href="mailto:carl.b.brenneise@nww01.usace.army.mil">carl.b.brenneise@nww01.usace.army.mil</a>
BOG Member at Large (509) 375-6317	Jeff McCullough <a href="mailto:jeff.mccullough@pnl.gov">jeff.mccullough@pnl.gov</a>
BOG Member at Large (509) 375-5989	Michele Friedrich <a href="mailto:mfriedrich@pnl.gov">mfriedrich@pnl.gov</a>

### Committee Chairs

Membership (509) 375-5989	Michele Friedrich <a href="mailto:mfriedrich@pnl.gov">mfriedrich@pnl.gov</a>
Newsletter (509) 375-6842	Sriram Somasundaram <a href="mailto:sriram.somasundaram@pnl.gov">sriram.somasundaram@pnl.gov</a>
Web Page (509) 735-1589	John Sutton <a href="mailto:jasutton@meierinc.com">jasutton@meierinc.com</a>
CTTC (509) 375-3710	Bing Liu <a href="mailto:bing.liu@pnl.gov">bing.liu@pnl.gov</a>
Student Activities (509) 627-2272	Kaleem Ullah <a href="mailto:mkaleem.ullah@verizon.net">mkaleem.ullah@verizon.net</a>
Honors & Awards (509) 375-5989	Michele Friedrich <a href="mailto:mfriedrich@pnl.gov">mfriedrich@pnl.gov</a>
Research Promotion (509) 783-1625	Gil Hibbs <a href="mailto:gilh@scm-ae.com">gilh@scm-ae.com</a>

*The Mid-Columbia Chapter of the American Society of Heating, Refrigerating and Air Conditioning Engineers was chartered in 1981 in Richland, Washington. We are part of ASHRAE Region XI and represent ASHRAE members in Eastern Washington State.*

### Help Sponsor our Website with a Business Card Ad

How would you like to place your business card in front of more than seventy eastern Washington ASHRAE members? For a low \$10 an issue, we can place your business card with company logo in a prominent location in our newsletter.

Interested??? Contact  
Jay Ashbaugh at (509) 735-1589  
[jpashbaugh@meierinc.com](mailto:jpashbaugh@meierinc.com)

### Important Notice About Future Meeting Dates

The dates for the 2006 and 2007 Winter Meetings are incorrect on some ASHRAE membership cards.

The correct dates for the Winter and Annual Meetings are:

- **2006**, Jan. 21–25 in Chicago, and June 24–28 in Quebec City, QC,
- **2007**, Jan. 27–31 in Dallas, and June 23-27 in Long Beach, Calif.;
- **2008**, Jan. 19–23 in New York, and June 21-25 in Salt Lake City, Canada;



## **SPECIFICATION ENFORCEMENT AFFECTS YOU**

**Traci Hanegan, P.E., LEED@AP**

**Coffman Engineers, Inc.**

### **Why is spec enforcement so good?**

- There is a legal basis for doing so • Owner gets what they paid for • Improves quality of future contracts
- Contractors are comparing apples to apples • Equipment verification • Fair to vendors/ reps
- Helps contractor in scheduling their work with other trades • Confidence that other contractors are held to the same standard
- Less worry when bidding that the competition will get away with providing less
- Contractor knows what to expect – no guessing about what the engineer will or will not enforce
- In the long run this will result in smaller punchlist reports by architects and engineers. Over time, contractors realize that everything is enforced and will have to eventually be fixed, so they are more likely to do it right the first time.
- Keeps quality contractors profitable and in business • Fewer call backs for operational problems. Keeps Owner happy.
- Bids are tighter, which makes the design team look better. • The system is more likely to work

### **What are the problems if we don't enforce the specs?**

- Comes back to bite the engineer • Future projects are worse • Why bother to write them if you don't enforce them?
- Designer's reputation suffers • System may not work • Possible early system failure • Things may not fit
- May get a system that uses more energy than planned • Unknown end

### **If enforcement is so good, why do we sometimes fail to enforce? What are the challenges to good spec enforcement?**

- The sheer quantity/breadth/depth of specs to produce • Proprietary or confusing manufacturer info
- Time and schedule for the project is too short – not realistic • Trying to avoid confrontation
- I like the rep – don't want to make them upset • Owner wants job finished on time more than they want it done right
- Unrealistic owner expectations – time, fee, scope • Time and fee allowed for site observations gets cut
- Owner won't back you anyway • Lack of good communication. • Owner has different goals • Too much complacency
- Codes and standards change so fast • Manufacturer changes to products – hard to keep on top of • Everyone is busy fighting for space
- City inspectors have different interpretations. Can be a big problem for contractor if the inspector is unreasonable or has too much pride.
- Lack of spec writing education for engineers. • Site visits are substituted for commissioning
- Engineer doesn't want to be questioned by the rep or the contractor. Not open to suggestion.
- More back-checking means less profit on a lump sum job.
- Pointing out problems that cost the contractor can cause them to be more aggressive about change orders for the rest of the project. They may be more likely to cause trouble.

### **Where are some opportunities for improvement or for overcoming challenges?**

- If you have to backcheck more than twice, the contractor pays for your time • Be serious about it
- Take pictures to illustrate deficiencies – better communicates it to the owner and is clearer to the contractor about what you mean. Good documentation for future.
- Share spec with reps before bid and get feedback. Architects need to schedule time for this and Owners need to agree, knowing the value.
- Develop a system in each consulting firm for updating specs for all projects (master specs) to keep them current.
- Don't use outdated specs. • Talk to the Owner and architect at the start of the project about the need for good enforcement. Get their buy-in.
- Write a performance spec, to avoid proprietary issues • Avoid catch-all phrases.

### **Where are some opportunities for improvement (cont.)?**

- Submit a site observation log to the architect (to share with contractor and owner) so everyone knows when you plan on visiting, what

you'll be looking at, and what shouldn't be done yet (i.e. no insulation on ducts before the duct construction is observed).

- Get a second opinion on your site visits. Take another engineer from your office, let them go in your place, or review their reports from other jobs. Get out of the rut of writing up the same things and forgetting about other issues.
- Conduct a mandatory pre-bid meeting. Point out the fact that you intend to enforce specs, so it gets in the meeting minutes and is clear to everyone. Note unique spec items and the site observation schedule.
- Fight for the fee to do site observations. Use the log that lists what will be observed at each visit – ask the owner “which visit do you want me to take out in order to reduce my fee?”
- Put an hourly rate for site observations, or a lump sum charge for every extra site observation visit, on your original fee proposal. Then it's easy to show how much the extra visit will cost, including visits for excessive back-checking.
- Admit errors when you make them. • Define the project scope better. Do a narrative.
- Have a pre-construction meeting, just after the bid. Highlight submittal requirements. Re-emphasize spec enforcement.
- Have a pre-installation meeting with the contractors that will actually be doing the installation. Review the submittals and spec with them and let them ask questions.
- Require the sub and general contractors to sign-off on each punchlist item and send it to you before you make a trip to backpunch.
- Make some site observations early in the project. Early detection of problems is better for everyone in the long run.
- When troubles arise – be fair and ethical. Ask other engineers (even your competition) on how to handle certain issues. They can give an unbiased opinion or share a past experience.
- Be open to suggestions for improvement on your specs and designs. Suggestions may come from contractors, reps, and other engineers. You can still learn something new about a design that is similar to 20 you have done before.
- Contractors – get submittals in early • Design team – review submittals fast
- Engineer – ask to see pay applications. Don't approve payment of items that have been installed incorrectly or not at all.