

HPAC revises its editorial advisory board

Cleveland, Ohio

HHPAC is pleased to announce five new members on its Editorial Advisory Board. Incoming members are: William Acker; Jeffrey Cosiol, PE; Jerry Koeningsberg; Paul W. Scanlon, PE, CEM; and James A. Wise, PhD.

HPAC's board is comprised of distinguished professionals serving the HVAC/R industry. Members of the board possess special expertise in various engineering and scientific fields, and through their leadership and commitment to excellence, they provide valuable assistance to HPAC's editors. Introductions of the new board members follow.

We also take this opportunity to express our sincere gratitude for the years of service volunteered by our outgoing and remaining members. A complete list of our esteemed board members and their affiliations can be found on page 3 of this and every issue.

**WILLIAM G. ACKER,
President,
Acker & Associates,
Green Bay, Wis.**

William Acker received his B. S. in Civil and Environmental Engineering at the University of Wisconsin-Madison in 1974. In 1998, he started his own engineering consulting business, which conducts energy surveys, boiler and steam turbine efficiency, cogeneration studies, industrial ventilation, indoor air quality design, building water vapor transmission and condensation analysis, air pollution control and estimates, voc emission control, competitive purchasing of natural gas and electricity, papermachine dryer surveys, and troubleshooting. In an effort to provide superior engineering for his clients, Mr. Acker has developed many advanced computer programs that have received a lot of attention from engineering firms, industrial manufacturers, and professional engineering societies. Some of these programs include:



• Psychrometrics and Thermodynamics of Air and Water Vapor Flows (up to 5000 F)

- Flue Gas Thermodynamics, Acid Dew Point, and Btuh
- Water Vapor Transmission & Condensation Analysis for Buildings
- Adiabatic Mixing of Air Streams
- Boiler Efficiency and Air Emissions
- Steam Turbine Efficiency
- Insulated Duct and Pipe Heat Loss, Heat Gain, and Condensation Analysis for Air Flow or Flue Gas Flow
- Papermachine Cylinder Dryer Hood Sizing Program & Energy Operating Costs

Mr. Acker has written a number of articles and has taught classes on psychrometrics, thermodynamics, air filtration, industrial ventilation, and air contaminant hygieneology. He has been a member of ASHRAE for 18 years, a member of TAPPI for 14 years, and a member of the Association of Energy Engineers for 18 years. He assisted in the formation of the first Wisconsin chapter of AEE in 1981 and was chapter president from 1984 through 1992.

Some of Mr. Acker's honors include a Bronze Key Engineering Excellence award in 1989 from James River for the development of his psychrometric analysis computer program. He also received a corporate energy savings award from James River for a heat exchanger system used to recover heat from a papermill effluent discharge.

**JEFFREY COSIOL, PE,
Managing Principal,
Kling Lindquist and Associates,
Philadelphia, Pa.**

Jeffrey Cosiol received his Master of Science in Electrical Engineering at Drexel University and Bachelor of Science in Electrical Engineering at Lowell Technological Institute. He is a registered Professional Engineer in Pennsylvania.

Mr. Cosiol oversees the design and implementation of voice and data communication systems; computer-based security and energy management systems; supervisory control and data acquisition (SCADA) systems for utility and transportation projects; and automation systems for commercial, industrial, and institutional facilities.



His responsibilities include direction of site investigations, threat analysis, development of security goals and objectives, preparation of detailed designs, and identification and evaluation of system alternatives. He also supervises contract documentation, system punch-out, and testing. He has significant expertise in government procurement matters regarding SCADA, fire alarm, and communication and security projects as well as private sector work.

During his 20 years with the firm, Mr. Cosiol has played a major role in projects in Brazil, Belgium, and Mexico.

Among his honors, Mr. Cosiol received the Certificate of Appreciation for Patriotic Civilian Service for Outstanding Service to the United States for work at U.S. Army Corps of Engineers, Huntsville Div., Huntsville, Ala.

His professional affiliations include: the Society of Military Engineers,

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American Society for Industrial Security, Association of Energy Engineers, and Association of Physical Plant Administrators.

JERRY KOENINGSBERG,
Principal,
GPR Planners Inc.,
Purchase, N. Y.

Jerry Koeningsberg earned his B.S. in chemistry from Long Island University, Brooklyn, N. Y. He has written numerous articles concerning laboratory design and fume hood systems and is the author of a handbook titled *The Fume Hood Operating and Safety Manual*, which has been distributed to numerous institutes of higher learning and corporations as part of their safety programs.



Mr. Koeningsberg has lectured to many professional and commercial organizations around the world. In addition, since 1982, he has conducted a series of three-day seminars entitled *Designing the State of the Art Laboratory* under the auspices of the Center for Professional Advancement, New Brunswick, N. J., which has been conducted in the U.S., Europe, and the Middle East. His project experience includes planning and designing over 50 laboratory facility projects.

Mr. Koeningsberg is a member of the American Biological Safety Association, American Chemical Society, Chemical Health and Safety (CHAS) committee of the American Chemical Society, NJ Chapter Industrial Hygienists, and S.E.F.A. He is a past member of the American Society of Testing Materials, past member of the Committee for Laboratory Standards, and past contributor to the Battelle Research Center's Study for Future Trends in Laboratory Designs.

PAUL W. SCANLON, PE, CEM,
Principal,
Burt Hill Kosar Rittelmann Associates,
Butler, Pa.

One of Mr. Scanlon's unspoken

goals has been to dispel the myth that the engineer's role in the building industry is limited by the laws of physics or thermodynamics.

Mr. Scanlon's early education (architectural engineering, PSU 1974) prepared him well for a career in which a solid technical foundation and strong

communication skills have been put to use in an integrated design team approach, leading to creative solutions to real problems.

In 1978, he was hired to startup an engineering group for a 40-person architectural firm—Burt Hill Kosar Rit-

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telmann Associates. At that time, a large segment of the firm's work involved conducting research into energy conservation, alternative energy sources, and how new products could best be integrated into various building applications. Working closely with his

firm's architects and research clients in such a creative environment convinced him of the value of an open, integrated design team approach—not just for research projects but for building design projects as well.

As his firm grew to six offices and more than 350 staff members (70 engi-

neering staff members), he gained valuable experience in marketing, client maintenance, and the many managerial aspects of running a large firm. He has played key roles in developing the firm's quality-control programs, pro-

ject/resource management tools, and a 360-degree performance evaluation system for key staff. He has also served on the firm's board of directors, acted as interim manager of information services for several years, and

acted as editor of the firm's Website, www.burthill.com/.

His firm's A/E teams have since won additional national and regional awards for energy-efficient, innovative solutions and projects in residential, secondary school, and higher education facility projects.

Mr. Scanlon currently resides in a passive, solar, earth-sheltered home of his own design, which is heated with a geothermal heat pump system.

**JAMES A. WISE, PHD,
CEO,
Eco • Integrations, Inc.,
Richland, Wash.**

Dr. James A. Wise has been a university professor, internationally recognized research scientist, and consultant to major corporations in his 30 years of professional work. Besides heading a private design research firm, he is also an Adjunct Professor of Environmental Sciences & Regional Planning at Washington State University, Tri-Cities. From an original background in Experimental and Mathematical Psychology, he has focused his career on the general problems of designing complex technical systems and environments to better fit them to users and organizations.

Dr. Wise has pioneered many behavioral design studies that deal with person-environment linkages, including the quantitative measurement of "spaciousness" and "habitability," "deopportunitizing design" to deter crime and vandalism, and the assessment of



occupant benefits of “green” buildings. He has over 100 publications in academic and professional literature and has won international research awards in industrial design and architecture, and a U.S. Dept. of Energy Award in Public Outreach and Partnership. He also shared an R & D 100 Applied Technology Award for leading a team of government researchers that created the world’s first software for visualizing textual databases.



In 1996, He founded Eco • Integrations, Inc., a consulting and information services corporation that addresses “high-risk, high-payoff” ideas in the development of new technologies and facility designs. Its purpose is to provide advanced design research and analysis that help

“integrate the people, technology, information, and environment” of tomorrow’s living spaces and workplaces. Current research work has focused on assessment of ecologically designed buildings and their benefits, the enhancement of high technology work environments to increase productivity and satisfaction, and development of new information visualization technologies.

ASHRAE Update

Update on Standards

H PAC interviewed and corresponded with representatives from three ASHRAE Standing Standard Project Committees (SSPCs) to get an update on the status of three important large-building standards:

- ANSI/ASHRAE Standard 62-1989, *Ventilation and Acceptable Indoor Air Quality*
- ANSI/ASHRAE/IESNA 90.1-

1989, *Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings*

- ANSI/ASHRAE 135-1995, *BACnet—A Data Communication Protocol for Building Automation and Control Networks*

In addition to the SSPC representatives, Claire Ramspeck, manager of standards, ASHRAE, and Ken Lewis, PE, president, KPRL, Inc., contributed to this story.

UPDATE #1: SSPC 62.1

- **Update #1: SSPC 62.1**—*Ventilation and Acceptable Indoor Air Quality in Commercial, Institutional, and High-Rise Residential Buildings*—Representing SSPC 62.1 is Andrew Persily, PhD, Group Leader, Indoor Air Quality and Ventilation, National Institute of Standards and

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Technology. Mr. Persily will be replacing Steve Taylor, PE, president, Taylor Engineering LLC, as the chair of the SSPC 62.1 committee in June 1999.

HPAC: What are the major operating differences when a standards committee is given the status of "continuous maintenance?"

SSPC 62.1: Continuous maintenance means that the standard is under continuous review; recommended changes can be brought forward at any time; not every five or ten years, as is done with periodic maintenance. It also allows changes to be made in any magnitude. An addendum could change anything from a single word to the entire standard. This way, the SSPC can move uncontested changes forward while holding back the contentious changes.

HPAC: When does the committee

expect to complete the task of rewriting the 62.1 standard in "normative code language?"

SSPC 62.1: The goal has been by the year 2000; however, some of the changes (addenda) that will convert the standard into normative language may still be in the approval process during 2000. So year 2001 may be more likely, and there still may be addenda that are not quite approved until 2002.

HPAC: "Sufficient" outdoor air continues to be the key in attaining acceptable IAQ. When or if will particulate and chemical filtration be considered to "refresh" recirculated air and thereby reduce the amount of outdoor air required per person?

SSPC 62.1: Air cleaning is currently allowed by the IAQ Procedure in the standard. One of the reasons why this approach may not be widely used relates to the lack of rating procedures for gaseous air cleaning equip-

ment. Particulate filtration standards exist that can be used to rate their efficiency, allowing design calculations to determine their impact. At this time, however, similar standards do not exist to determine the effectiveness of removal of gaseous pollutants by chemical filtration. When recognized rating standards are developed, the standard can be amended.

HPAC: What amendments are currently being considered, and what is their status and schedule?

SSPC 62.1: Beyond the addenda that are either out for public review or being developed for a future public review (which are mainly focused on converting ANSI/ASHRAE Standard 62-1989 into normative code language), there are two new sections that are being worked on via continuous maintenance. A new section entitled *Operating and Maintenance* has just been

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approved by SSPC 62.1 for public review. Presently, the committee is working on a section entitled *Startup and Construction*, which the committee should approve for public review in the near future.

HPAC: 62-1989 has stimulated a lot of debate in the industry. What issues are presently the most contentious?

SSPC 62.1: Let's say that the following issues are challenging:

- Outdoor air cleaning—when, and if ever, is it required?
- Calculation procedures for design ventilation rates.
- Calculation procedures for ventilation rates in spaces where smoking is permitted.

HPAC: There seems to be a lot of activity within SSPC 62.1 on the topic of smoking. What's going on there?

SSPC 62.1: Addendum 62e,

which deleted the language on a "moderate amount of smoking" from the footnote to Table 2, was approved by the ASHRAE Board of Directors last January (1999) in Chicago. It still has to be approved by ANSI, and there are appeal options at both the Board and ANSI.

Addendum 62g, which went out for public review last fall, contains requirements on how to separate zones where smoking is allowed from zones where smoking is not permitted. It is intended for the body of the standard. A number of comments were received in the public review, and the committee is currently addressing them.

And, finally, there is a new addendum that contains guidance on how to determine ventilation rates in spaces where smoking is permitted for the purpose of controlling odor. The current thinking is that this guidance would be located in an ap-

pendix to the standard rather than in the body. The committee has recommended this third addendum for public review, but it still needs to be approved by the ASHRAE Standards Committee.

UPDATE #2: SSPC 90.1

• **Update #2: SSPC 90.1—*Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings***—Representing SSPC 90.1 is Ron Jarnagin, staff scientist, Pacific Northwest National Laboratory. Mr. Jarnagin is currently the chairman of SSPC 90.1. He will be replaced by Lawrence Spielvogel, PE, consulting engineer, Lawrence G. Spielvogel, Inc., in June 1999.

HPAC: Is Standard 90.1 on continuous maintenance?

SSPC 90.1: No, Standard 90.1 is

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currently being maintained under Periodic Maintenance. The Society plans to put Standard 90.1 under continuous maintenance once the revision of Standard 90.1 is completed in June 1999.

HPAC: What amendments or major changes have occurred this year, and what changes are currently being developed?

SSPC 90.1: Standard 90.1 is nearing completion of a new, revised standard that will completely replace the existing 1989 version of the standard. The revised standard has been through two full public reviews beginning in 1996 and has recently completed a public review of the last remaining Independent Substantive Changes. The revised standard contains substantial changes designed to show progress in energy efficiency, address the issues of simplicity and enforceabil-

ity, speed the time to market in terms of use of the standard, and address the needs of the international community. The standard has also been changed significantly to reflect its intention of being adopted by the model code agencies.

HPAC: What is the status of the amendments, and what is their review/adoption schedule?

SSPC 90.1: The second public review draft of Standard 90.1R, along with the six Independent Substantive Changes (ISC), which recently completed public review, will form the basis for the revised standard. The project committee is currently reviewing public comment on the ISCs and will produce responses to commentors on those ISCs at an interim meeting the end of April, 1999. The project committee plans to approve the final document for publication at the ASHRAE Annual Meeting in Seattle in June

1999. Once approved by the project committee, the document must then be approved by the appropriate ASHRAE standing committees and councils before being submitted to the ASHRAE Board of Directors for final approval. All of the approval steps are planned for the Seattle meeting, which should result in a final standard becoming available sometime later in 1999.

HPAC: Standard 90.1 has drawn considerable debate in the past. What issues are presently the most contentious?

SSPC 90.1: The most contentious issue in Standard 90.1 has been the issue of fuel neutrality, or lack thereof, implicit in the standard. Elements of both the gas and electric utility industries have hotly debated whether the standard should be based on site or source energy. Each industry sees benefits in

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different approaches, which has made it difficult for the committee to reach a consensus position that each industry could support. The current proposal for Standard 90.1R reflects site energy through its focus on cost to the owner/operator of the

building. The committee feels that this represents the best reflection of the economic decisions being made by those that must pay the bills. The current proposal is also consistent with all previous versions of Standard 90 in terms of its treatment of energy.

UPDATE #3: SSPC 135

● **Update #3: SSPC 135—BACnet—A Data Communication Protocol for Building Automation and Control Networks**—Representing SSPC 135 is H. Michael Newman, manager, Utilities Computer Section, Cornell Univ. Mr. Newman is currently the chairman of SSPC 135.

HPAC: When does the committee expect ASHRAE to issue a “standard method of testing” for product compliance per BACnet standards?

SSPC 135: The SSPC has been working for several years on a proposed companion standard to BACnet entitled *Testing Conformance to BACnet*. The document, which will be designated Standard 135.1, is very nearly complete, and there is hope that we will be able to recommend public review at the ASHRAE Summer Meeting in Seattle (June 1999). The duration of the public review depends on the quantity and nature of any comments received. If all goes smoothly, it is possible that the new standard could be published early next year. Once finalized, it is expected that 135.1 will form the basis of an industry-sanctioned BACnet product-certification program.

HPAC: What independent testing laboratories could certify products to meet the standard?

SSPC 135: There are quite a number of them, but frankly, the SSPC has thought it premature to talk about labs prior to the completion of the testing standard. It might even turn out that the BACnet companies would want to set up a new, *ad hoc* organization specifically for the purpose of conducting the testing. Although the specifics of testing and certification have yet to be ironed out, there is a definite consensus that the testing process should be fair, expeditious, and as low cost as possible. We want to do what we can to ensure that BACnet products really do work together but not throw unnecessary roadblocks in

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the way of would-be implementers.

HPAC: What are the most recent modifications to the standard?

SSPC 135: The SSPC has produced two addenda to the Standard, 135a, BACnet/IP, and 135b, a collection of 17 “independent substantive changes.” 135a was approved for publication at the Chicago Winter Meeting (January 1999) and is now “the law of the land” as far as sending BACnet messages across a local intranet or the Internet. 135b was recommended for public review by the SSPC and is now being reviewed by ASHRAE staff prior to being sent to the Standards Committee.

HPAC: What new capabilities do these addenda provide?

SSPC 135: Among the new capabilities provided by the proposed 135b are three new object types. The *Multi-state Value* object type will allow for communication about multi-state processing that is independent of hardware devices and makes the family of multi-state object types analogous to the *Analog and Binary* object types, which have always had a *Value* type (along with *Input* and *Output* types). A new *Averaging* object type will allow access to the minimum, maximum, and average value of a specified data point. The new *Trend Log* object type will allow the collection and manipulation of (time, value) pairs using a new BACnet service called “Read-Range,” which will allow a client application to read a segment of a trend log between two specified times.

Another new service, “UTCTime Synchronization,” will allow devices to use Coordinated Universal Time (usually referred to as UTC or Greenwich Mean Time) to synchronize their operation. This could be important to BACnet networks that extend across multiple time zones.

The other modifications basically refine or enhance existing capabilities. The details of the proposed addendum, along with an abundance of other interesting information, can be found on the official SSPC 135 Website at www.bacnet.org/.

Where can I get addenda to ASHRAE Standards?

ASHRAE has approved several addenda that have not yet been approved by ANSI. These addenda have not been published and are not available for sale. When the addenda are approved by ANSI, ASHRAE will publicize their availability.

Addenda that are out for public review are available free of charge from the ASHRAE Website, www.ashrae.org, in the Standards area under “ASHRAE Activities.” Hard copies can be purchased for a nominal charge from ASHRAE Customer Service, 800-527-4723.