

NEW MEXICO CHAPTER

REGION IX

ALBUQUERQUE, NEW MEXICO

# THIN-AIR BULLETIN

ASHRAE

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS

November 2005

## Fume Hood Installation Issues for Laboratory Ventilation

Although NFPA 45 offers some insight into the fire protection of laboratories, a safe design needs to incorporate numerous features from many codes. A recently completed redesign of a 200 hood wing of an R&D facility provides a prime example of what errors can be made when the designers fail to understand the full spectrum of safety issues.

This presentation will be of value for anyone planning to design or operate a laboratory using fume hoods. It will focus on recent design trends for fume hoods handling gases and chemicals (including NFPA Hazard Class 3 and 4), perchlorates, radiological and biological materials. It discusses the transportation, storage and piping requirements for hazardous materials, detection of leaks at both the hood and within the laboratory, the benefits and hazards of low face velocities, waste disposal techniques within the fume hood, storage of acids and solvents in and about the fume hood, use of electrical power in and about the fume hood, and clearances between fume hoods. Links and citations to relevant NFPA codes will be given along with building codes and FM/IRI standards. Numerous photographs will show actual unsafe installations and the corrections made to provide for a safe laboratory.

We are delighted to have **James Wernicke** as our guest speaker for our November meeting. James Wernicke is the Mechanical Department Manager

(Continued on page 2)

## **PRESIDENT'S MESSAGE**

It is hard to believe that we are having our last ASHRAE meeting of 2005 (Note: December's meeting is a tour and social event). For our December event, we will be attending Disneyland. Just kidding, I wanted to see if you were paying attention. We will be taking a tour of UNM's Ford Utilities Plant. Look for details to follow.

I welcome your comments on how the first part of the ASHRAE year went. Are we doing the right things that our members want? Are there enough day meetings along with enough night meetings? Have the programs been of value to you? Please let me know, as the only way that our chapter will become stronger is by participation and feedback.

I hope you and your families have a safe and memorable Thanksgiving holiday. Again, thanks for your participation. I look forward to seeing you at the meeting.

Stay healthy,

Jason A. Moorhead

## From the History Books

November 1974

Chapter Officers were:

President:	Jim Coupland
President-Elect:	M. U. Grover

The meetings title was “Energy Conservation – As It Applies to a University”. The speaker was Don Paxton. He spoke about studies being undertaken at Rice University designed to determine where operating costs could be reduced.

An announcement was made that the December gathering was to be a “Black Cat Christmas Party” to be held on Friday December 13<sup>th</sup>.



## October Program Review

### New Mexico Energy Code Update Program Review

Last month's program featured Harold Trujillo and Dan Hagan from the New Mexico Energy, Minerals and Natural Resources Bureau. Harold gave us insight into the lengthy process required for New Mexico to adopt new codes. Dan brought us up to date on the latest New Mexico Energy Code including the adoption of ASHRAE 90.1 –2001. Thanks to all that attend last month's meeting and we look forward to seeing everyone at this month.

## Membership Promotion

### Membership Promotion Night:

Our New Mexico Chapter will be having the first of two Membership Promotion nights at this month's meeting. We encourage everyone to attend and invite potential members to see how vital ASHRAE is to our industry. Membership applications will be available.

### ASHRAE Mentoring Program:

Our New Mexico Chapter is working to establish the Mentor-Protégé Program and is looking for volunteers to serve as mentors. Mentors will help inexperienced ASHRAE members or student members in development by teaching, coaching, counseling and/or championing with a focus on the Protégé's professional and ASHRAE development.

Please contact me at your earliest convenience with any questions regarding membership or the Mentor-Protégé Program.

Pat Davis  
M&E Engineering, Inc.  
Patd@mneengineering.com

## November Speaker continued

(Continued from page 1)

of DMJMH+N in Albuquerque, NM where he specializes in the design of high tech facilities and laboratories. He is a professional engineer licensed in New Mexico and Arizona, LEED accredited and a member of NFPA, ASHRAE, ASME, USGBC and NSPE. The author of numerous technical papers and publications he has also served on several committees for the advancement of the engineering profession. James has been recognized for his work by the DOE (Sandia Laboratories), New Mexico Society of Professional Engineers and the Louisiana Society of Professional Engineers. Please plan on joining us for lunch on Tuesday, November 22<sup>nd</sup> at Gardunos on the Green. Please RSVP by November 18<sup>th</sup> to Deward Stegall at (505) 884-2044 or Dwstegall@trane.com. Email is preferred.

## Research Promotion

This month is donor recognition month for last years donors. Please join us at this months meeting so the chapter can recognize you and your companies. Just reminder, every dollar raised for ASHRAE Research is used for research. ASHRAE is currently managing over \$11 million in research projects around the world and has many more approved projects just waiting for the funds to begin their research. That's why your financial support is needed and greatly appreciated.

For more information on the Research Promotion project, email me at dave72graham@aol.com or 323-7629, or send your check to RESEARCH PROMOTION, 11930 Menaul NE, Suite 214 Albuquerque, NM 87112.

### ASHRAE Research Plan Provides Guide for a Sustainable Future

ATLANTA – Providing navigation for a sustainable future is the goal of a new research strategic plan developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

The plan outlines ASHRAE's research goals for the next five years. It centers on sustainability, which is defined as "the concept of maximizing the effectiveness of resource use while minimizing the impact of that use on the environment."

"Research and technology are the foundation of ASHRAE on which everything else is built," said John Mitchell, Ph.D., P.E., chair of the Research Advisory Panel that developed the plan. "With issues related to energy conservation, refrigeration and indoor air quality facing our industry, our foundation must remain strong."

The plan contains goals in five targeted areas. These include:

#### Energy and Resources

- Provide guidance on techniques to working toward achieving net zero-energy use by 2015, meaning buildings that consume equal or less en-

ergy than they produce on an annual basis.

- Produce by 2015 new residential and light commercial buildings that have 70 percent less energy use than buildings built at the turn of the millennium according to ASHRAE Standard 90.2, Energy-Efficient Design of Low-Rise Residential Buildings.
- Optimize and make consistent ASHRAE Standards 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings, 62.1, Ventilation for Acceptable Indoor Air Quality, and 55, Thermal Environmental Conditions for Human Occupancy, to achieve measured and verified high system energy efficiency with high indoor environmental quality (IEQ) for indoor built environments.

#### Indoor Environmental Quality

- Make improvements in occupant health and comfort that can yield a 20 percent increase in productivity by 2015.
- Provide an optimal indoor environment for buildings, vehicles and facilities with respect to comfort, productivity, health and safety.
- Provide better understanding of how contagious viruses are transmitted in an indoor environment and develop remediation techniques and equipment to minimize exposure.

#### Tools and Applications

- Develop more effective tools that will improve the productivity of the design process by 25 percent by 2015.
- Develop dual path standards where paths are prescriptive based and performance based.
- Develop a measurement-based rating system to establish the environmental performance of a building and its system.
- Provide design guidance for buildings and systems to address the past and expected change in climatic conditions.

#### Equipment, Components and Materials

- Establish techniques to improve the energy efficiency and reliability of heating, ventilating, cooling and refrigeration system components.
- Improve performance and reliability and minimize the environmental impacts of working fluids and materials.
- Advance ASHRAE's role in the safety and security of food distribution.

*(Continued on page 4)*

*(Continued from page 3)*

- Develop techniques that reduce the installed energy use of HVAC&R system auxiliary equipment by 50 percent by 2015.

#### Education and Outreach

- Make the results of ASHRAE sponsored and cooperative research available to the technical community.
- Ensure that ASHRAE research has an international impact.

To view the plan or for more information on ASHRAE's research program, visit [www.ashrae.org/research](http://www.ashrae.org/research).

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

## ASHRAE Satellite Broadcast

### Sustainability Topic of ASHRAE Satellite Broadcast

ATLANTA – A satellite broadcast is being offered by ASHRAE to fulfill its goal of promoting building sustainability as a means to provide a safe, healthy, comfortable environment while simultaneously limiting the impact on the Earth's natural resources.

Information about building sustainability principles, practices and emerging concepts will be presented in the free April 19, 2006, satellite broadcast and Webcast, Sustainability and the Building Environment. The program is sponsored by ASHRAE's Chapter Technology Transfer Committee (CTTC).

"This broadcast will benefit all of the team members involved in the design, construction, start-up, and operation phases of a facility," said Jon Christopher Larry, chair of CTTC. "Viewers will be given information and sources to assist them when they are faced with the situation where a green design must be done. The green building industry will also benefit from the engineering input from ASHRAE."

The speakers for the broadcast will provide guidance on how to practice green building design. They are: Joe Van Belleghem, president, BuildGreen Developments, Victoria, Canada; Hal Levin, Fellow ASHRAE, research architect, Building Ecology Re-

search Group, Santa Cruz, Calif.; Jean Lupinacci, director, ENERGY STAR commercial and industrial branch, Climate Protection Partnerships Division, U.S. Environmental Protection Agency;

Kevin Hydes, P.E., P.Eng., president and CEO, Keen Engineering, Montreal, Canada; and Malcolm Lewis, Ph.D., P.E., president, CTG Engetics, Irvine, Calif.

The broadcast will be similar to the April 2005 Mold in the Building Environment Broadcast/Webcast viewed by some 16,000 viewers at 1,700 locations.

Visit [www.ashrae.org/greenbuildingsbroadcast](http://www.ashrae.org/greenbuildingsbroadcast) for the latest information regarding the broadcast/Webcast and ASHRAE's work on sustainability.

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

## Addenda Availability Changes

### ASHRAE Implements New Process to Update Code-Intended Standards

ATLANTA – As part of ongoing efforts to increase use of its standards, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has announced a major change to availability of addenda to code-intended standards.

The move puts ASHRAE in line with issuance of model building codes.

In the past, addenda for code-intended standards on continuous maintenance were posted individually on ASHRAE.org after being approved by the Board of Directors for publication. Now, Board-approved addenda to code-intended standards will be published in a supplement. The supplements for each standard will be published on a regular schedule halfway between the three year publication of each standard. The addenda also will be incorporated into each standard when it is reissued after its last publication.

*(Continued on page 5)*

*(Continued from page 4)*

Richard Hermans, P.E., chair of ASHRAE's Standards Committee, acknowledges the change is significant.

"Our whole approach to how we relate to the building code industry is changing," Hermans said. "We are seeking more involvement with the model code development community to assist us in our code proposals. We are responding to member concerns over the cost of keeping up with our code-intended standards. By cost, I am not referring to the dollars spent for obtaining the updated documents but rather the cost in time to train employees about the new requirements contained in addenda. And we are aligning our release of certain standards to coincide with the model code schedules for code change proposals."

All of these actions point to a policy of releasing addenda on a predictable schedule spaced out over years, he said. "In this way, we will develop our code-intended standards in the same way that groups such as the International Code Council and the National Fire Protection Association, both of which incorporate ASHRAE standards, maintain their model codes," he said.

The change applies only to code-intended standards that are on continuous maintenance. These are:

- Standard 15, Safety Standard for Refrigeration Systems;
- Standard 34, Designation and Safety Classification of Refrigerants;
- Standard 52.2, Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size;
- Standard 62.1, Ventilation and Acceptable Indoor Air Quality in Commercial, Institutional, Industrial and High-Rise Residential Buildings;
- Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings;
- Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings;
- Standard 90.2, Energy Efficient Design of Low-Rise Residential Buildings;
- Standard 140, Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs.

The first supplements for standards pub-

lished will be available in March 2006.

For more information on ASHRAE's work in standards, visit [www.ashrae.org/standards](http://www.ashrae.org/standards).

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

## **ASHRAE 62.1 User's Manual**

### **User's Manual Provides Better Understanding of ASHRAE 62.1**

ATLANTA – A new user's manual provides users with a better understanding of the design, installation and operation requirements in ASHRAE's ventilation standard.

The Standard 62.1 User's Manual explains the requirements of ANSI/ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality, and contains numerous examples of their application in an easy-to-follow question and answer format.

"Because the standard is written in code-intended language, such material could not be included in the standard itself, so the manual helps users better understand the intent and apply it to their work," Dennis Stanke, chair of the Standard 62.1 committee, said. "It helps users understand what Standard 62.1 requires and how those requirements can be met. It's a document that designers have needed for many years and will find useful for many years to come."

The manual includes a CD containing a spreadsheet to assist in the standard's new ventilation rate procedure calculations.

The manual was developed through ASHRAE research and partially funded by the National Institute of Standards and Technology, the Air-Conditioning and Refrigeration Institute and the U.S. Green Building Council.

The cost of the Standard 62.1 User's Manual is \$55 (\$44, ASHRAE members).

To order, contact ASHRAE Customer Service  
*(Continued on page 6)*

*(Continued from page 5)*

at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, by mail at 1791 Tullie Circle NE, Atlanta, GA 30329, or visit the ASHRAE.org Bookstore at [www.ashrae.org](http://www.ashrae.org).

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

## Proposed Cabin Air Standard

### ASHRAE Releases Proposed Cabin Air Standard for Public Comment

ATLANTA – A proposed standard that will define air quality and comfort levels on airplanes has moved one step closer to publication.

ASHRAE's proposed standard 161P, Air Quality within Commercial Aircraft, is open for public comment until Nov. 7, 2005.

Also open for review until that date is the proposed companion guideline to the standard, Guideline 28P, Air Quality Within Commercial Aircraft. It provides supplemental information on air quality in air-carrier aircraft and on measurement and testing related to aircraft air quality.

The proposed standard would apply to commercial passenger air-carrier aircraft carrying 20 or more passengers. It is intended to apply to all phases of flight operations and to ground operations whenever the aircraft is occupied by passengers or crew members.

No such standard encompassing ventilation, thermal comfort and filtration currently exists for aircraft.

"The environment aboard commercial aircraft is different than that found in other spaces commonly occupied by people," Byron Jones, Ph.D., chair of the 161 committee, said. "While aircraft are operated with the comfort of passengers and crew in mind, their safety and health must always be paramount."

Among the reasons aircraft cabin environments are unique are occupant activity levels range from almost completely sedentary (passengers) to active (flight attendants); passengers and crew make up a wide cross section of the general population; and aircraft must be regarded as both a public place (passengers) and a workplace (crew).

The proposed standard requires a minimum total air supply of 15 cubic feet per minute (cfm) and recommends 20 cfm per person. The requirement may be met with a mixture of outside air and filtered recirculated air or with 100 percent outside air. A minimum of 7.5 cfm per person of outside air is required.

In addition to ventilation requirements, the proposed standard addresses supply air quality and control and monitoring of contaminants to further ensure satisfactory air quality is maintained, according to Jones. Requirements for comfort factors, such as rate of change of cabin pressure, air temperatures and surface temperatures, and minimum and maximum air velocities, also are included.

An informative appendix supplements the requirements of the standard with background information on a variety of potential air contaminants, methods of measurements, references to standards and guidelines of allowable levels, and data for levels measured on aircraft.

Drafts of ASHRAE's proposed standards and guidelines are available only during their related public review periods. To obtain electronic draft versions of the Standard 161P or Guideline 28 during the comment periods, log on to ASHRAE Online at [www.ashrae.org/standards](http://www.ashrae.org/standards).

ASHRAE, founded in 1894, is an international organization of 55,000 persons. Its sole objective is to advance through research, standards writing, publishing and continuing education the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve the evolving needs of the public.

## '06 ASHRAE Winter Meeting

### Using Integrated Design to Achieve Sustainability

ATLANTA – In designing buildings, professionals should work together to determine points of integration between various building systems, architecture and the environment.

Only when this integrated design is achieved will buildings become truly sustainable, according to Kirk Mescher, chair of ASHRAE's Program Committee.

Several sessions relating to integrated or sustainable design will be presented at the American Society of Heating, Refrigerating and Air-Conditioning Engineers' 2006 Winter Meeting, Jan. 21-25, Chicago, at the Palmer House Hilton. One-hundred and four sessions will be presented as part of the technical program. The complete technical program can be found at [www.ashrae.org/chicago](http://www.ashrae.org/chicago).

Integrated design is an all-encompassing design strategy that should integrate architecture, engineering, building use, location and utilities into a building form that meets or exceeds the requirements of the integrated components, according to Mescher.

"Green building design has grabbed headlines," he said. "As a subcomponent of integrated building design, green building design has become the marketing measure of forward thinking for engineering professionals. As a minimum, design teams should be asking: 'Why can a building not recognize when the occupants arrive and turn on the necessary building functions to support occupants? Can the heating and cooling system be integrated with the building architecture to minimize the need for mechanical support? Can the building control system be integrated with communication, alarm, security and other electronic systems?'"

Among the sessions is a symposium on creating low-energy buildings through integrated design. It includes case studies of low-energy, sustainability and integrated design in residential and commercial buildings.

A seminar focuses on HVAC&R buildings systems and how they interact with the local environment, including discussion on cooling tower water, district energy and acoustic concerns.

While many non-profits have incorporated green building design, for-profit entities are just beginning to examine green in operating strategies and projects. A seminar examines how green is good for business as well as the environment.

A forum seeks input on the barriers to using air-to-air energy recovery for sustainable HVAC systems. Energy recovery ventilation is a key equipment solution to providing efficient and sustainable HVAC&R systems.

The technical program is comprised of 62 seminars (presentations on a central or related topic with no published papers), 14 symposia (presentations with papers on a central subject), 26 open-discussion forums, a poster session and a public session. A total of 73 papers will be presented.

Held with the ASHRAE Winter Meeting is the ASHRAE co-sponsored International Air-Conditioning, Heating, Refrigerating Exposition, Jan. 23-25, at McCormick Place. For more information, contact International Exposition Company at 203-221-9232, [info@ahrexpo.com](mailto:info@ahrexpo.com), [www.ahrexpo.com](http://www.ahrexpo.com).

Registration for the 2006 ASHRAE Winter Meeting is \$635 (\$375, ASHRAE member) prior to Dec. 2. After Dec. 2, the registration fee will be \$750 (\$490, ASHRAE member). For more information or to register, visit [www.ashrae.org/chicago](http://www.ashrae.org/chicago).

**- NOVEMBER MEETING -**

SPEAKER: **James Wernicke, P.E.**

TOPIC: **Fume Hood Installation Issues for Laboratory Ventilation**

DATE: **Tuesday, November 22, 2005**

Albuquerque Location: Garduno's on the Green  
9401 Balloon Museum Dr.

**LUNCH MEETING**

TIME: 11:45am Buffet; 12 pm Program

TECHNICAL SESSION: None

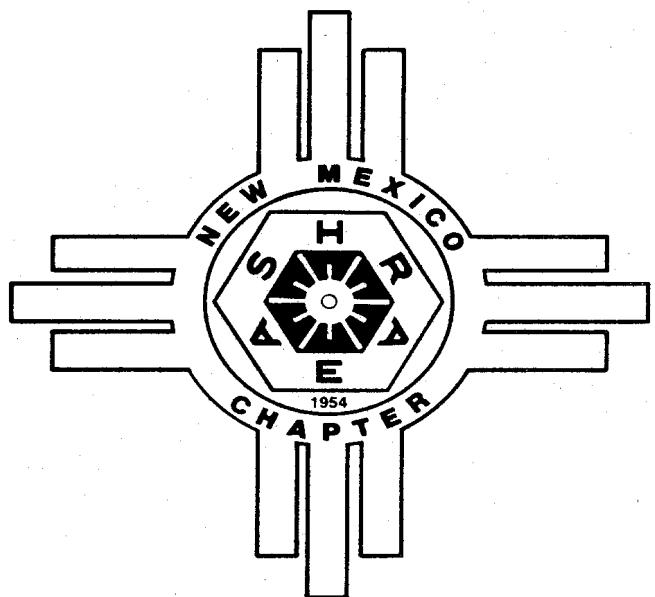
MENU: Buffet

COST: \$15.00

All cost are inclusive of tax and tip

RSVP: Friday, November 18th, to Deward Stegall at  
505-884-2044 or [Dwstegall@trane.com](mailto:Dwstegall@trane.com)

**Email preferred**



New Mexico Chapter of ASHRAE

Dan Harmeyer

Harmeyer Nellos Engineering, Inc.

915 Yale Blvd SE

Albuquerque, New Mexico 87106

505-888-5808

505-888-5809 fax

**CHAPTER MAY NOT ACT FOR SOCIETY**

STATEMENTS MADE IN THIS PUBLICATION ARE  
NOT EXPRESSIONS OF THE SOCIETY OR OF THE  
CHAPTER AND MAY NOT BE REPRODUCED WITH-  
OUT SPECIAL PERMISSION OF THE CHAPTER.



**THE HASSLE FREE WAY OF DONATING TO ASHRE RESEARCH  
FAX TO DAVID GRAHAM NOW! AT (505) 323-7594, OR...**

Mail Check To:  
**ASHRAE RESEARCH**  
c/o The Response Group, Inc.  
11930 Menaul NE Suite 214  
Albuquerque, NM 87112  
davidgraham@trg-inc.net

Your Contribution puts us closer to achieving our goal. Please send what you can today!

\*Individual contributions of \$100 or more and Corporate contributions of \$150 or more receive this year's Commemorative Coin and Honor Roll Contributions status.

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Credit Card #: \_\_\_\_\_ Expiration Date \_\_\_\_\_

INDIVIDUAL	\$50.00	\$75.00	\$100.00*	\$125.00	Other: _____
CORPORATE	\$100.00	\$150.00*	\$250.00	\$500.00	Other: _____

\*Minimum for Honor Roll Recognition by Society

*Individual and corporate contributions advance industry research resulting in better products, installation methods, buildings and profits.*

*Please invest in your future through ASHRAE RESEARCH.*

Our chapter's thanks and society gratitude are extended to the following members for last year.

**\$500 and above:**

Energy Control Inc.  
Bridgers & Paxton  
Energy Balance, Inc.  
W.M. Carroll & Co.  
Mechanical Representatives  
Public Service Co. of NM

**\$250 to \$499:**

Southwest Trane  
Norman S. Wright Co.  
Miller Bonded Inc.  
The Johnston Company  
Eng & Tech. Consulting Inc  
\$100 to \$249:  
CAC Inc.  
NM SMACNA

**\$100 to \$249:**

Nick Nellos Endowment  
Dr. Maurice Wildin  
Crest Mechanical Systems  
Automated Control Systems  
Anderson Air Cond. – ABQ  
Jim Feeney Consulting  
National Heating & Ventilating  
Mike Dexter  
Ed Faygal  
Boyd Engineering Supply  
John Garcia  
John Grapsas  
Jed Lowey  
Ed Reyes Jr.  
Mike Slaman  
Keith Wilson  
Rivera Engineering

**Full Circle - \$100 per**

**Board Member**

Jim Asperger	Current
Dan Beckley	Collections
Dave Graham	for 2005 - 2006
Gary Grange	
Dan Harmeyer	\$11,000
Jason Moorhead	\$10,000
Rich Reif	\$9,000
Charlie Scoggin	\$8,000
Charles Steele	\$7,000
Deward Stegall	\$6,000
JR Sunderman	\$5,000
	\$4,000

**Up to \$100:**

Bruce Levin	\$3,000
Scott Salisbury	\$2,000
John Scott	\$1,850
Brad Turk	\$1,000

