SAABE TIMES

A publication of the San Antonio Association of Building Engineers *December 2005*

Mark Your Calendar—

JOIN US FOR OUR DECEMBER LUNCHEON

The next General Membership Meeting of the San Antonio Association of Building Engineers is set for 11:30 am on Wednesday, December 21 at the Alamo Cafe on 281 (just north of Bitters). This month, we'll hear from the SAABE board about the status of the organization, and the membership will elect its 2006 Board of Directors.

The meeting will be held in the first floor Travis/Bowie rooms, to the right of the entrance. There is plenty of parking at the back of the restaurant. **Please make sure to check in at the front desk when you arrive.** Please do not leave valuables in your vehicle, as members have reported attempted break-ins in the restaurant parking lot.

Please RSVP to (210) 408-1699 by Tuesday, December 20. PLEASE RSVP so we can be sure to have enough meals on hand!

We hope to see you there! ❖

Nominations Extended for 2005 Building Engineer of the Year

The San Antonio Association of Building Engineers invites you to nominate your/a Building Engineer for the 2005 SAABE BEOTY Award. This prestigious award exemplifies an engineer's achievements and dedication during the past 12-to-16-month period as related to the building industry.

To nominate a Building Engineer, simply send a letter with your name and contact information, the candidate's name and contact information, and what contributions he/she has made during the past 12-to-16 months that makes this candidate deserving of the award. You can also include information such as training or award certificates, tenant letters, or other materials to support the nomination. The individual must be a member in good standing with SAABE. We encourage you to nominate outstanding assistant engineers for this award, also. Some of the evaluation criteria include:

- Participation in SAABE events and meetings
- Recent continuing education
- Major projects in the past 12-16 months
- Employee training
- Tenant & owner/manager evaluation letters
- Safety record
- Community participation

Send nominations to SAABE (address on page 8). Please call the SAABE office if you have any questions.

DEADLINE FOR NOMINATIONS EXTENDED TO MONDAY, JANUARY 16, 2006 ❖

CELEBRATING
20 YEARS
OF EXCELLENCE IN BUILDING ENGINEERING

Jock Tilghman, CBE-J (right) presents a plaque of appreciation to his manager Marcia Barber of Transwestern.

A Message from the President

by Bob Beal

As all you already know, in this life, nothing is forever no matter how hard you may try to make it that way. Preparing for change can be compared to quitting a bad habit. You know you have to do it, but it is usually put off until you hit the brick wall or the brick wall hits you.

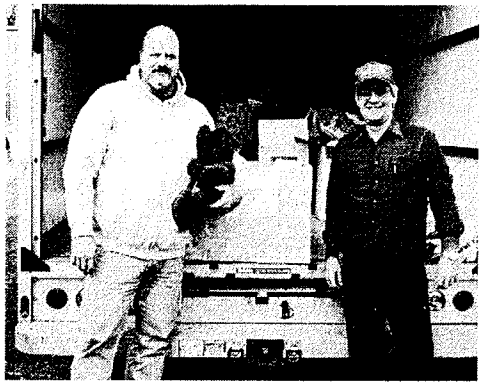
I have always compared my working life to my personal life. In reality you spend as much time at work as you do at home. Most of your personal life is spent sleeping or preparing yourself to go to work. By the time you get home at 6:00pm, you eat, play with your kids, take care of your wife and household, then to bed by 10:00pm. Most of us are surrounded by maybe three or four people at the office. Even though these people are working partners, you end up spending more time with them than with your family.

Just like at home and with your friends, relationships are made and certain confidences are established. It's funny how much you know about the people that you work with. At home if you do not like the people you live with, it often ends with conflict or even separation from the people that you love. Sometimes it is self-inflicted and sometimes it is beyond your control. How you treat the people you work for and the people at home has a big part of how life treats you back.

At work, remember never to burn bridges even though the people around you are burning their bridge to you. It will come back to you at some point. Having the ability to get up, hit the streets, and do better for yourself is the best way to prove yourself.

Getting fired or laid off never feels good. However in my case, it was bittersweet. Within three days, I found the job of a lifetime with the Pedernales Electrical Cooperative as maintenance manager. I respect my past employer. They treated me with professionalism while I was employed with them, and I wish them the best. They only did what they felt was best for them in this ever-competitive business. I am not the only one who has hit hard times as an engineer, and I will not be the last. I was overwhelmed by my fellow SAABE members and past managers who called me with their good wishes. I want to say a big thanks to Rhondo Jauer from Transwestern who told me he prayed for me and that he wished there was something he could do for me. Well Rhondo, it worked. Transwesten has one of the biggest involvements with SAABE, and the way they treat their engineers shows. I look forward to being your president for one more year. I will forward my new contact info as soon as I get settled in my new position.

Merry Christmas and Happy New Year. ❖



SAABE President Bob Beal (left) presents SAABE's contributions to Buddy Doebbler of *Construction News* for their Construct-A-Kids Christmas toy drive.

Tech Talk #100: Refrigeration/Air Conditioning—The Basics

by The Charlie

Part 3 of 4

Pressure

Although refrigeration is concerned with heat, pressure is the next most important thing in theory and practice of refrigeration. The term fluid is often used when discussing pressures, a fluid being either a liquid or a gas (or a vapor). Fluids are composed of matter and they therefore have weight. The addition of heat to a fluid will cause the molecules to move with increased velocity so that they will move farther apart and therefore press with greater force on the walls of a container. Conversely, the removal of heat will cause a decrease of motion, which will reduce the force exerted on the container. This is also known as expansion, and contraction.

Fluid Head

A fluid will exert pressure because of its weight, and the pressure due to a column of fluid is directly proportional to the height of the fluid. *Fluid head is a general term used to designate any kind of pressure exerted by a fluid, whether due to the height of a column of the fluid, or due to velocity, or other causes.* A common example is the conversion of pressure (pounds per square inch), to the height of a column of water.

If you had a cubical container measuring one foot on each side, and filled it with water one foot deep (water weighs 62.4 pounds per cubic foot), a force of 62.4 pounds will be exerted on the bottom of the container (since the container is square the pressure will be 62.4 pounds per square foot). Now, considering there are 144 square inches in a square foot, the pressure of the water on one square inch area is 62.4 ÷ 144 = 0.433 pounds. One foot of water is equal to 0.433 psi, and one psi is equal to 2.31 feet of water (1 ÷ 0.433). On this note, if you take a gauge and measure the suction pressure of a pump, then use it to measure the discharge pressure of the pump, subtract the suction from the discharge (differential P), take the sum and multiply it times 2.31, this will give you the "feet of head" needed when using a pump curve chart. Now you know where/how the factor of 2.31 comes from!

Atmospheric Pressure

The Earth's atmosphere consists of oxygen, nitrogen, some other gases, and water vapor. All of these have weight and therefore exert force on the Earth's surface due to their weight. A column of this atmosphere one-inch square and extending from sea level up to its maximum height (about 600 miles) weighs 14.7 pounds, so the pressure of the atmosphere at sea level is 14.7 psi. Barometric pressure is a way of expressing the pressure of the atmosphere. Barometric pressure is measured with a barometer. A homemade barometer is easily made but due to the characteristics of mercury, using water works almost as well and is a neat science project for the kids. Using a rather long test tube and a bowl or dish, fill the test tube with water, invert the dish place on the top of the tube (to catch the water released when you invert the test tube), holding the dish against the open part of the tube, turn the tube over, before lifting the tube from the bottom of the dish, fill the dish to about 2/3 full, slightly raise and support the tube. Not all the water will escape from the tube due to the vacuum. Measure where the level of water is, check your weather station to determine the barometric pressure, and mark this level. After about a week of inclement weather you will have your own barometer. As the atmospheric pressure rises and is pressing against the water in the dish with greater force, the level of the water in the tube will elevate into the void where the vacuum is located. As the pressure decreases, the level in the tube will as well.

Gauge Pressure

A pressure gauge is calibrated to read zero when not connected to a source of pressure. When pressure is exerted on the gauge, it will read the pressure above or below atmospheric pressure. Pressures above atmospheric pressure are usually expressed as psi, but may also be expressed in inches of water column (W.C.).

Absolute Pressure

The total pressure, which is the sum of atmospheric pressure plus gauge pressure, is called absolute pressure. Absolute pressure is the pressure above a perfect vacuum (30 in. Hg.), or, gauge pressure in psi plus 14.7

Fluid Flow

The operation of refrigeration systems requires the flow of fluids, both liquid and gas (or vapor). The must be a difference between the pressures at two points of a system to cause the fluid to flow from one point to another. This pressure difference is necessary to overcome the resistance to flow, which occurs because of the following:

- Resistance of the fluid itself to flow. Viscosity is a measure of a fluid's resistance to flow, (makes you think about your motor oil about now don't it)! Viscosity is also affected by temperature.
- Friction against the walls of the pipe, tubing or other object in which the fluid is flowing.
- Pipe fittings (elbows, tees, valves, etc.) cause changes in the direction of flow. This causes turbulence that disturbs the flow and results in a loss of pressure.
- Pressure may be required to push the fluid upward, against gravity, in a vertical rise. Conversely, a vertical drop may assist flow or cancel out the effect of a vertical rise.

Next Month: Pressure/Temperature Relationships

CHARLIE'S LAW: If quitters never win, and winners never quit...how can you ever "Quit while you're ahead"?

JUSTA MAINTENANCE MAN ❖

Communications Check-Up

by Laura Bray

Using Voicemail Effectively

Welcome to a new feature in *SAABE Times* called "Communications Check-Up." Each month, I'll provide some tips on how to improve your communications skills, from to and verbal to non-verbal. I welcome any and all feedback. Let me know what you think of this new feature, and I'd love to hear your suggestions on what topics to cover in the future. This month, I'll provide some tips on effective voicemail.

I know, I know…you hate voicemail. But engineers are always out on the property somewhere, and vendor reps are out on sales calls. Here are six tips for using voicemail effectively:

1) Speak slowly. Keep in mind that the recipient is probably trying to jot down notes about your call, and if you speak too quickly, he won't understand or can't keep up.

2) Begin with your name and company. Some people might know who's talking by just your voice and first name, but it's safer to use your full name, plus your company.

3) Keep your message short, but descriptive enough for them to know why you're calling. Voicemail is not the time to go into a lot of detail. Rather than listing out all the required changes in the proposal, just say, "I have some feedback on the proposal. Give me a call and I'll give you the specifics."

4) Tell the recipient the best way to reach you. If you won't be in your office for a while, let him know a good time to call back. Or provide an alternate number. Or suggest he contact you via email (then leave your email address, spelling it out slowly).

5) Provide your phone number, preferably twice…and remember, speak s-l-o-w-l-y. Some recipients might know your number off the top of their head, but most probably won't. And they'll be irritated if they have to go look it up. So unless it's your best friend or mother, include your phone number. Again, speak slowly. Imagine you're writing it down as you say the digits, because that's what they'll be doing.

(Continued on page 6)

BOMI Classes on a Roll!

by Tom Lasater

With only three wheels, the ride has been a little bit bumpy, but for the last three months, a lot of learning has been going on. The "three wheels" to date have been Doug Graves, his assistant Gilbert Aguilar (both from the Hines building One Oak Park, 1020 NE Loop 410), and me, Tom Lasater from Caremark. We have been learning about the refrigeration cycle, temperature pressure chart, and humidity and how it affects indoor/outdoor equipment operation and comfort. We have just started studying the famous Psychrometric Chart.

We have decided to study the SMT (System Maintenance Technician) course and in particular the Refrigeration Systems and Accessories book, since many techs know about lighting (change bulbs and ballasts), plumbing (plunger and auger toilets), and electrical (checking and replacing receptacles and switches), but not a lot about what happens in the pipes running to and from cooling towers, chillers, and air handlers. Hopefully when they finish the course, they can tell us the state of the refrigerant, its pressure and temperature, if it has sub-cooling, and why it has these characteristics at various points along the refrigerant line.

These sessions (held the first and third Thursdays at One Oak Park from 11:30am–1:00pm) are an excellent opportunity for building engineers, new assistants, or anyone lacking a good knowledge of air conditioning principles to gain knowledge and practical experience. The BOMI application fee is $50.00 for individual courses or $ 150.00 for the complete set. The books are $345.00 each and make up a good reference library. If you're interested in participating, call Tom Lasater (771-5824) or Doug Graves (828-7712) for further information.

We need more wheels! ❖

THANK YOU to these vendors, who have provided Last-Thursday Training Seminars this year:

- Southpro Restoration
- Stephen and Stephenson
- Bolin Plumbing
- Blackmon Mooring Steamatic
- Curaflo
- Gerloff Company ❖

Communications Check-Up

(Continued from page 4)

6) Record a useful voicemail greeting for those who call you. Include your name, your extension number (if applicable), and your department or responsibility (that way, if someone has reached you in error, he'll know it right away). The caller already knows you can't take their call, so leave out this phrase. If your greeting is long (maybe you need to leave a variety of alternate numbers), include details on how to bypass the greeting (if available). Frequent callers don't need all this information every time they call. Include information on how to reach a live person, if your system provides such a feature. Here's a good example: "Hello, this is Laura in accounts payable. Press the star key to bypass this greeting. Please leave a message at the tone, and I'll get back to you as soon as I can. Dial zero to reach an attendant."

And a final tip for leaving voicemail messages for me—keep in mind that I manage several other groups with total membership exceeding 500. Many companies are members of more than one group. So a message like "This is John from KCI, and I want to RSVP for the meeting" doesn't give me enough information, and I must call you back. Make sure you give me your full name, company, and that you're RSVPing for the SAABE meeting.

Next month: Tips on writing email. ❖

Welcome New Members

James Council, Mike Dawson, James Jinks, and Paul Melendez
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james.jinks@utsa.edu
paul.melendez@utsa.edu

If you know someone who'd like to join SAABE, have them visit our web site at www.saabe.org to obtain a membership application. ❖

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Endeavor Real Estate Group
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San Antonio, TX 78230

SAABE TIMES
December Issue

Final Thought:

**"I heard the bells on Christmas Day, their old familiar carols play.
And wild and sweet the words repeat, of Peace on earth, good will to men."**

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2005 Board of Directors

Bob Beal President	
Tom Lasater 1st Vice President	403-8241
Mike Halvorsen, CBE-M 2nd Vice President	979-8002
Kendal Langenberg Secretary	885-5194
JR Uresti Treasurer/SABOMA Representative	495-2195
Jock Tilghman, CBE-J Education Director	681-2494
Allen Mangrum Vendor Representative	824-7683
Elena Castillo Past President	822-8570
Laura Bray Association Manager (laurabray@braycommunications.com)	408-1699

Membership Luncheon
December 21, 2005
Time: 11:30 a.m.
Location: Alamo Cafe on 281
Annual Board Elections and Business Meeting

Upcoming Program:
Wednesday, January 18
Sponsored by SA Armature Works

The *SAABE Times* is edited by Laura Bray and printed monthly for the San Antonio Association of Building Engineers by:

ink SPOT ink
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