



# SAABE TIMES

A Publication of the San Antonio Association of Building Engineers

November, 2000

Mark Your Calendar —

## Variable Frequency Drives

Our sponsor, Dick Lux of Five Star Electric Motors will be the featured speaker at our luncheon on November 15, 2000. Mr. Lux, owner of Five Star, will present a discussion on the basics of variable frequency drives and how to maintain them.

Five Star Electric Motors has been in business for about 20 years, and is devoted to providing variable frequency drives to customers in commercial and industrial buildings and institutions. They are representatives for a number of different companies, but they also service their equipment as well.

Hope to see you there!

### Interested in Sponsoring a Luncheon?

If your company would like to sponsor an upcoming SAABE luncheon, please contact Mike Alvarez at 824-7683. Presentations should be "generic" (not a sales pitch) and informational in nature. When a sponsor is a vendor company, their sponsorship must include payment for lunches. The cost is approximately \$450 to \$600. The only exception is when a non-vendor entity (government and non-profit agencies, etc.) is providing the program. Each exemption for payment must be approved by the board on a case-by-case basis.

## Education Corner

By Mike Lusk

### Upcoming NTT Seminars: 1-800-922-2820

"Cross-Connection Control and Backflow Prevention" — San Antonio, November 27-28. \$695.00

"Boilers" — Austin, January 23-25, 2001; Houston, February 13-15, 2001.

"OSHA (1910.331-335) Electrical Safety" — Houston, February 7-8, 2001.

"OSHA (1910.269) GT & DE High Voltage Electrical Safety" — San Antonio, February 14-15, 2001.

"Grounding and Bonding of Building Electrical Systems-NEC" — Houston, January 31 – February 1, 2001; Dallas, February 19-20, 2001; and Austin, February 21-22, 2001.

### Independent Electrical Contractors (IEC)

Continuing Education classes for your electrical license renewal. Call Diana at 736-4567. Courses cost \$40 for IEC members and \$45 for non-members (per 8 hour course).

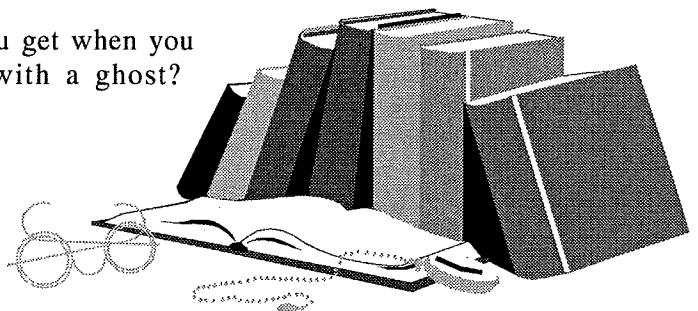
CE006 – Boxes, Conduit, Cabinets and Panelboards: Sizing and Fill Requirements. Monday, December 4<sup>th</sup> and 11<sup>th</sup>. 6:00 p.m. – 10:00 p.m.

CE003 – Overcurrent Protection. Saturday, November 18<sup>th</sup>. 8:00 a.m. – 5:00 p.m.

CE002 – Branch Circuits, Feeders and Services. Saturday, December 2<sup>nd</sup>. 8:00 a.m. – 5:00 p.m.

CE007 – Motor Controls. Saturday, December 9<sup>th</sup>. 8:00 a.m. – 5:00 p.m.

What do you get when you cross Bambi with a ghost?  
*Bamboo.*



# Above the Ceiling

by Paul Thompson

## Oil and Electricity (Oil and Water)

Recently, there's come before the public an issue of fire safety regarding the stacking of AC/furnaces over electric water heaters in residences. It seems that on several occasions, water backing up from plugged condensate drains has dripped onto the water heaters and caused a fire. The editorial board of the Express News has weighed in that the Electrical Board should follow National Electric Code (NEC, also known as Chapter 70 of the National Fire Protection Association codes). Now forgive my ignorance, but my understanding has always been that the NEC sets the minimum standards allowed — a floor that you cannot go below, although local jurisdictions frequently set higher standards. That said, it seems the disagreement is over the E-board's interpretation of the NEC.

Whichever way this plays out, there are hundreds, if not thousands, of residences in San Antonio with this arrangement and possible fire hazard. What to do? Keep your condensate drain lines CLEAN! Pour a cup of 50/50 bleach and water solution down the drain once a month or so during cooling season. Follow up 10 minutes later with a gallon of water to flush. And *maintain* your furnace — call a professional to check it out regularly. Mr. And Mrs. Homeowner, your safety is in your hands!

But who watches over our safety when we go to work in our office buildings, hotels, hospitals, schools, etc.?

Are FIRE SYSTEMS (alarms, sprinklers, extinguishers, etc.) being tested and maintained (as required by NFPA codes) so they'll work when needed? Don't forget smoke control, fire dampers, auto-door releases, etc. Are your fire walls up to the task? How often do you have a fire drill?

How about PLUMBING? Are your backflow preventers in place and tested annually (code again) to prevent pollution of your drinking water due to cross-contamination?

HVAC (Heating, Ventilation, Air Conditioning): Are boilers operated correctly, with proper maintenance and all safety controls working? How good is your building's IAQ (indoor air quality)? Are procedures in place to prevent legionella (the cause of Legionnaire's Disease) in your cooling tower?

Are your ELECTRICAL SYSTEMS built and maintained for safety? No hot spots, overloads, incorrect grounding, etc.?

The people down at the City (E-board, inspectors, etc.) are charged with the huge responsibility of making sure that structures are *built* up to code and are as safe as possible. They are doing their job. However, once it is built, their job is done. From that point on, safety is in the hands of the maintenance people — the BUILDING ENGINEERS. This is where SAABE comes in.

The San Antonio Association of Building Engineers was founded in 1985 with the goal of "raising the bar" of professionalism in our chosen field. The task of maintaining a large facility with miles of wire, ductwork, piping, electrical/electronic/pneumatic/computerized control systems with hundreds or thousands of individual components is not one to be left up to amateurs. Through SAABE's monthly meetings/educational seminars, newsletter, trade show, networking and our own Certified Building Engineer accreditation program, we are attempting to educate our members in the process of keeping our facilities safe and sound. The issue is only the water we drink, the air we breathe, the safety of ourselves and our children.

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## SAABE Gives Back to the Community

At our last general membership meeting, we had the pleasure of honoring two schools with a check in the amount of \$750.00 each. Mrs. Lydia Martinez, Principal of Anson Jones Middle School, and Ms. Mary Joe Chamberlin, heading the Communities in School program, gladly accepted our donation. This donation will be used toward needy students, who otherwise might be discouraged because he/she did not have school supplies, uniforms, etc.

Mr. Daniel Gomez, Vice-Principal at Sam Rayburn Middle School, and Mrs. Anita Contreras, the Gifted and Talented Program Coordinator, also at Rayburn, graciously accepted our donation. They, too, will use this donation in helping their students through various incentive programs.

Thanks to your SAABE membership and support, we feel, because of the stability of our finances within the organization, we can give back to the community. The SAABE Board thanks you, the Members, for allowing our organization to grow as large as it has.

If you, as an associate member, would like to make a donation to a needy school, you may contact Elena Castillo at 495-2195 or Mike Alvarez at 824-7683 for assistance. Of course, you will be mentioned in the SAABE newsletter and get recognition for your efforts.

*Elena C. Castillo  
1<sup>st</sup> Vice President*

## Heard It Through the Grapevine



- Steve Cevallos has joined Travis Commercial Real Estate as a Building Engineer.
- Larry Peck is now with Transwestern Commercial services, at the Titan Building.
- Gilbert Rubio, Jr. replaces Rudy Balboa as Roving Engineer for Lincoln Property Company.

## Qualitative Analysis of Water Deposits

The following quick and simple tests can be performed to qualitatively determine what type of deposition is occurring in your water systems. This list is not intended to be comprehensive, rather it is based on the most likely deposits in cooling systems.

**Calcium Carbonate:** Add a small amount of hydrochloric acid to the sample. If the sample bubbles and fizzes it is releasing carbon dioxide that suggests carbonate is present.

**Copper:** Digest sample with 10ml hydrochloric acid. Add sufficient distilled water to bring the sample volume to 50ml. A blue/green color typically indicates the presence of copper.

**Iron:** Place dry sample on a flat piece of paper or into a dry flask. Run a magnet along the bottom. If the sample is magnetic it probably contains active iron oxide  $Fe_3O_4$ .

**Microbiological - General:** Place sample at the end of a wooden handle spatula. Gently burn the sample with a propane torch. If the sample just burns, without supporting combustion, and has the smell of burning garbage, it is most likely microbiological.

**Microbiological - Anaerobes:** Place a drop of dilute hydrochloric acid on a fresh, moist sample. If the sample gives off a rotten egg smell (hydrogen sulfide) it is anaerobic. This test should be performed outside.

**Oil:** Place a small flake of chemically pure camphor in the sample. If the flake "dances" around in the sample, no oil is present. If the flake stops dead in the sample, this is a positive indication of oil contamination.



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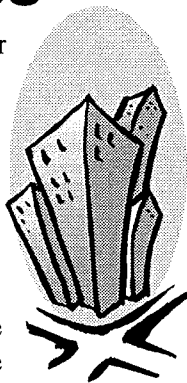
Rhondo Jauer  
219-8150 mbl.

Alvin Thompson  
219-0813 mbl.

# Building Tour a Success

A note of thanks to Doug Graves for providing a tour of the One Oak Park building located on N.E. Loop 410 last Wednesday, November 8.

A small group of people showed up for the tour that lasted about an hour and a half, and we were able to see firsthand the fantastic job Doug and company (i.e. Michael) are doing on the building. Doug and company have combined their efforts and expertise to provide their owners a savings on their lighting fixtures and HVAC equipment. I will not elaborate how, but if you want to know more, call Doug.



Educating our members, by providing tours to learn about the different types of buildings and equipment, will not only strengthen our relationships, but will also increase our knowledge and performance in our profession.

If you would like to be a tour guide at your building, please call one of the Board members so that we can make arrangements.

## Seminar Highlights

A roofing seminar held by Cram Roofing on their property November 3, 2000 was a "sellout". Many of the SAABE members attended as well as other vendors, property managers, private entities, and even members of the clergy.

Mr. Richard Boon, President of Construction Support Services, presented an excellent speech on Why Roofing is Important. He described the different types of roofing materials, how to properly install them, why you should use them, and explained the benefits of their application.

Mr. Boon also stressed the importance of maintenance on your roof, the maintenance required for each type of roof, what can be done in-house, and what should be budgeted to protect your investment.

For those of you who were unable to attend, we can only hope that Mr. Boon returns for another engagement. Those people that did attend left with an abundant amount of knowledge and valued experience shared by Mr. Richard Boon.

Cram Roofing Company, Inc., which includes our very own SAABE member, David Webb, did an excellent job hosting this seminar. We thank him and Cram Roofing for a job well done.

# Thank You, Sponsor!

I would like to thank last month's sponsors, Ward Systems and Mechanical Maintenance of Texas, for a great presentation on Direct Digital Control Systems. Mike Alvarez and Bob Wright discussed user-friendly systems, which are available through their company as well as other members' companies.

The best thing about these systems is that their offices are located right here in San Antonio! And of course, San Antonio is known for being a friendly town, so local representatives from all of these companies are always there to assist.

I have worked with different systems as such and the ease of controlling a building from a central location saves a lot of energy. By that, I mean not only saving utility dollars, but labor as well. A central location allows you to perform tasks such as adjusting temperatures, start-stops on equipment and lighting, and trending equipment. Otherwise, one has to visit each area and manually adjust controls, temperatures, etc.

I would recommend any of you to look into these types of systems if you feel that you have a high cost of utility consumption. SAABE has excellent associate members who are always willing to cater to your building needs.

*Elena Castillo*

*1<sup>st</sup> Vice President*



## It Pays to Advertise!

Dimensions	1 Issue	3 Issues	1 Year
Full Page (7.25"w x 9.5"h)	\$110	\$280	\$1,000
Half Page (7.25"w x 4.35"h)	60	150	575
Half Page (3.5"h x 9.5"h)	60	150	575
Quarter Page (3.5"x 4.75"h)	30	75	280
Business Card (3.5"w x 2"h)	20	50	190

Send ad copy (camera-ready black and white laser, or black and white velox) and payment to SAABE, P.O. Box 691861, San Antonio, TX 78269.



# Control of Legionella

Legionella is a fairly common bacterium found in water, which if inhaled can cause pneumonia-like symptoms that can lead to severe complications and even death. The bacterium is transmitted to humans in tiny water droplets that are small enough to be inhaled into the base of the lungs. This is of importance since cooling towers, by their very nature, send a mist of water into the air as part of the evaporation process that is used to cool the water. Listed below are several suggestions to help prevent a possible outbreak of Legionnaire's disease.

1. Insure that the tower sump is free of sediment.
2. Make sure that high efficiency drift eliminators are in place, and in good repair.
3. Prevent areas of stagnation.
4. Use proper microbiological treatment. The suggested treatment is to maintain continual halogenation (chlorine or bromine) with a 0.5 to 1.0 ppm free residual. If halogenation is

intermittent then utilizing a non-oxidizing biocide is also recommended. Additionally, a bio-dispersant will help to penetrate any slime masses.

5. Regularly test the level of microbiological activity and add sufficient biocide (oxidizing or non-oxidizing) to maintain a total bacteria population below 10,000 cfu/ml.
6. Utilize proper scale and corrosion control products.
7. Whenever operations personnel are working in or around cooling towers a filter mask that covers the nose and mouth is suggested.

Finally, if you experience symptoms please see a physician immediately and let he/she know that you work in the vicinity of cooling towers where the possibility of Legionella exists. Antibiotic treatments are available which are effective if initiated soon enough after exposure.

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## Back in the Black! (Part Three of Three)

As previously mentioned in the first two articles, we have outlined the importance of backflow prevention for protecting our drinking water from contamination. Outlined as well was the need to protect our drinking water from fire protection systems. The risk of injury or death by fire is substantial — fire has consistently killed thousands of people in buildings every year since 1900. While the risk of water supply contamination is remote — based on statistics by the Foundation for Cross-Connection Control and Hydraulic Research — 308 illnesses and 1 death have been attributed to fire protection cross-connections since 1900. This isn't to say that it can never happen, because in the case of the Arboretum, it did. The cause was mainly in part to the system being installed incorrectly.

Another situation which can have similar results is when the backflow prevention assemblies which were installed to protect the tenants and mainly our landlords, are not being tested on a prescribed frequency. More often than none, buildings have more backflow prevention assemblies in use than the regulatory community is aware of (City of San Antonio and SAWS). This may be due to permitting issues, lost paperwork or just plain "if it don't have a tap number, it don't need to be inspected". This is the farthest from the truth!

If someone went to the extent to install a reduced-pressure-principle backflow assembly, it was for a reason. So why on earth would you not have it inspected as required? The same applies for door closers. Someone put that \$300.00 door closer on that door for a reason — to keep it closed! If one would look past the trees, one would know that the closure is on the door because it is in a rated partition, and

the installation of a door stop to prop the door open violates the effectiveness of rated corridors.

So why would you install a backflow assembly and not inspect it? The cost for the annual inspections is not exorbitant. In most instances, the additional assembly was installed as part of a tenant finish-out and the expense would then be picked up by the tenant. As a rule of thumb; it is generally the backflow preventers that are rarely used which fail the testing inspections. Where is the liability at? You knew of it's installation; you as a building engineer know that these assemblies require inspections; and you of all people should know better cause you inspected the other existing assemblies but you did not include this one!

Maybe it is not being inspected because of the hassle of dealing with two entities (City of San Antonio and SAWS). The timing of the inspection notice letters can be accommodated at the same time. Just call

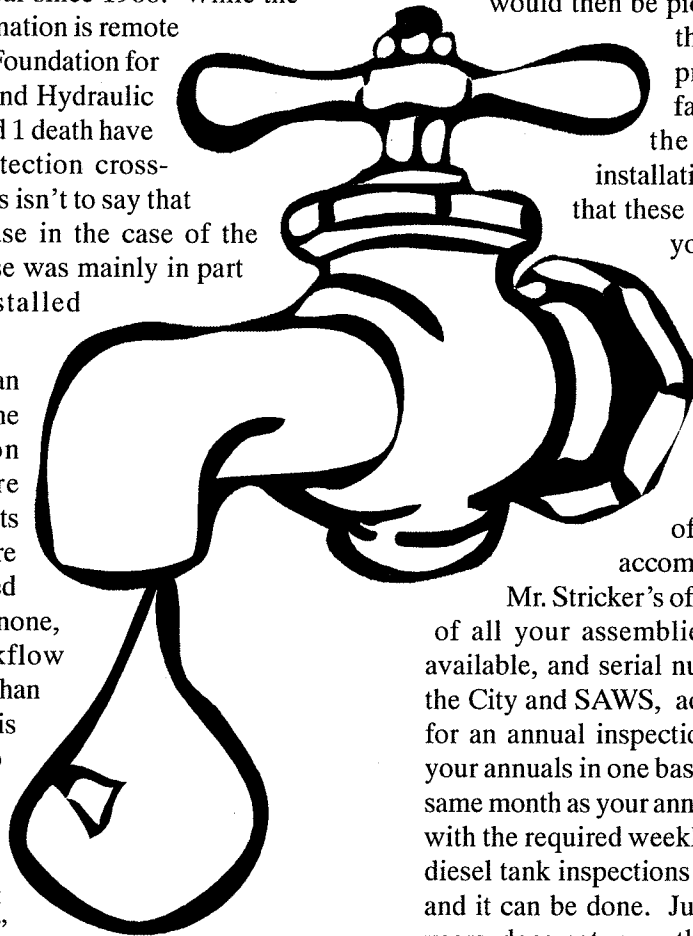
Mr. Stricker's office. Additionally, take an inventory of all your assemblies — make, model, size, tap # if available, and serial number. When communicating with the City and SAWS, add these to your list and make plans for an annual inspection. Better yet, put the majority of your annuals in one basket. Plan to do these inspections the same month as your annual fire pump test (not to be confused with the required weekly fire pump test), davit inspections, diesel tank inspections (UGST), etc. It is not that difficult and it can be done. Just because it has been that way for years, does not mean that it's the right thing to do.

By working towards the common goal of maintaining the integrity of the water supply, we can resolve many of these issues.

Next Month: Grounding, Bonding, and Sprinkler Systems

Charlie's Law: The three fastest means of poor communication are: (a) Telephone; (b) Telegraph; and, (c) Tell-A-Woman!

*"Just a Maintenance Man"*



# Just For Fun

## Japanese Banking Crisis Gets Worse

Following last week's news that Origami Bank had folded, we are hearing that Sumo Bank has gone belly up, and Bonsai Bank plans to cut back some of its branches. Karaoke Bank is up for sale, and it is (you guessed it!) going for a song.



Meanwhile, shares in Kamikaze Bank have nose-dived, and 500 back-office staff at Karate Bank got the chop. Analysts report that there is something fishy going on at Sushi Bank, and staff there fear they may get a raw deal.

### A Bit of Trivia

Do you know when the United States Marine Corps was first formed? (in 1775, of course) They have been in existence for 225 years.

Did you know that in 1920, American women won the right to vote? *Who knows, they may run for President next. Ahem....*



### A Little Bit of History....

Where were you when the lights went out on November 9, 1965?

On this date, a massive power failure left more than 30 million people in the northeastern United States and eastern Canada in the dark. The experience highlighted the vulnerability of 20th century technology. In many cities hit by the electrical outage, a baby boom followed nine months later.

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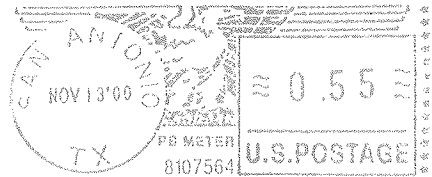
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**SAABE TIMES**  
**November Issue**

*Final Thought —*

*Have you ever wondered why just one letter  
makes all the difference between here and there?*

**2000 Board of Directors**

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Association Coordinator

**Membership Luncheon**  
**November 15, 2000**

**Time:** 11:30 a.m.

**Location:** The Barn Door  
8400 N. New Braunfels Ave.

**Topic:** Variable Frequency Drives

**Speaker:** Dick Lux, owner of Five Star  
Electric Motors

**Sponsor:** Five Star Electric Motors

**Reminder: Don't miss the annual  
SAABE Christmas Luncheon! It will be held  
December 20, 2000 at Tex's Bar & Grill  
located in the Airport Hilton.**

The SAABE Times is produced monthly for the San Antonio  
Association of Building Engineers by:



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