



SAABE TIMES

A Publication of the San Antonio Association of Building Engineers

September, 1999

Opinions Wanted

Join SAABE at its September 15th General Membership Meeting, where we will set aside the program slot for member discussion on our CBE (Certified Building Engineer) program. We had some good input during the few minutes of discussion at last month's meeting, and decided to devote an entire meeting to getting feedback from the people for whom the CBE was created...the building engineers.

Some background — the CBE was first created by SAABE as a stepping stone for eventual (we hoped) city certification of the maintenance workers who work on the critical equipment in the office buildings and facilities which house many tenants and employees during the workday. Some of our members feel very strongly that such a "license" is needed to help assure that qualified people are working on this equipment, which would help to prevent tragedies from poorly skilled maintenance workers. This is seen as a safety issue. Others feel very strongly against this issue, seeing it as just another fee to pay to the city, more recordkeeping requirements and more bureaucratic headaches.

The reason we are revisiting the existence of the CBE is that some potential liability issues came up when we passed a revised and reworked application by an attorney. (Yep, blame the lawyers.) While it is frustrating and disappointing to have the litigious nature of society throw a wrench at us good folks just trying to improve things, this very real issue got the Board's attention in a big way.

So the questions are these...

1.) Do you want the CBE to remain as a professional designation offered by SAABE? Does it have value to you? Would you pursue it yourself? Would you encourage your staff to pursue it? Is it worth keeping around?

We want to try to keep the "side issue" of city certification out of this primary question and just get an answer of whether to proceed with the CBE designation or discontinue it, period.

2.) If there is consensus that you do want to see it kept alive, at that point we can broaden the scope of the

discussion into the areas of liability issues we are faced with and how to make the CBE program legally viable to continue.

3.) Once those two points have been covered and everyone has had their say, then we can move on to an open forum on the city certification issue and get your comments on that.

We need to keep these issues in separate discussion categories, so we can try to avoid "talking all over the map" and not getting anything decided. We're also going to have an orderly method for comment, which will begin with recognition by the chair. Once you have the floor, please limit your comments to 2-3 minutes and then let the next person have an opportunity. If you have any follow-up comments, please save them until everyone has had a first opportunity to be heard. Then you may take a second turn at the mic. Our Sergeant at Arms, Tom Lasater, will personally bull-whip anyone who abuses these courtesies. (Okay, he might give you one warning first.) But, seriously, we do want everyone to have a chance to give their input and want to avoid having the same person or persons "hogging" the floor.

We really want you to come, and bring some thoughtful comments with you. Pro or con, we need direction from all of you in order to proceed. Please join us. We'll see you there!

Building Engineer Needed

An office building in North Central San Antonio is looking for a Building Engineer with a minimum of three years experience. Must be familiar with fire alarm systems, energy management, card access, HVAC diagnostics, computer literate, Registered Electrician permit with City of San Antonio and be able to perform general maintenance. The position will be open in October or November. Please fax resume with salary history to (210) 308-9870.

Equal Opportunity Employer

Above the Ceiling

by Paul Thompson

Burnin' Down the House

The call came in on the beeper late Saturday afternoon from Gordon. "We've got a little emergency here...The electrical service entrance burnt up, caught on fire. Gonna need your help out here."

Sure enough, burnt right through the heavy steel riser conduit, turned the wires into charcoal. The remains of one of the main lugs was a meteorite-looking piece of slag metal in the bottom of the meter box. Luckily, the church didn't catch on fire — the fuses blew on the transformer up on the pole. Gordon said it was because he finally came to church services for the first time...

But looking at it closer, it was probably a miracle that the little country church had gone so long without a fire or someone getting zapped. Wires were loose, double-lugged and even triple and quadruple lugged. Wiring laying on the ground, strung from one place to the next in the free air. Breakers wrong sized, fuses bypassed. An indoor panel mounted high up outside on the back of the meeting room, no cover at all; some wires hooked up, some not, just twisted off to one side below the peak of the roof — all completely exposed to the weather and all HOT. Two AC units were installed at different times and, although the units and ductwork installation were sound, the wiring left much to be desired. Overall, you'd be hard pressed to find much that actually met National Electric Code. This place was going to need a *lot* of work.

One of the Earth's most active earthquake zones runs through Turkey, so the recent quake there wasn't exactly unexpected. The huge amount of devastation was. Throughout the country, building after building was reduced to rubble, trapping and killing tens of thousands. The survivors, in their grief, raged at the builders. Steel reinforcing bars that should have been ¾" thick were like pencils. Concrete was crushed in peoples' bare hands. It was not a problem with a lack of stringent building codes — they were on the books but, by all accounts, inspections were rare. Maximized profits by cutting costs made many builders rich but killed thousands. There are now calls throughout the country to try these same builders for murder.

Fifteen years or so ago, the buss duct blew up on the second floor...even now when you go in the Electrical Room you can still see where those thousands of pieces of burning metal left their mark on the sheetrock. At the minimum, an event like this sends everyone in the building home for a day or two (is this a problem?). Problems compound if there are flammables in the space...and what about the fire sprinklers? Is it a good idea to spray dirty

water on high voltage electricity? Or is it hot — should there have been a breaker tripped or something? Where? Could an infrared scan have told you in advance that there was a problem or not? Does it matter when (or how) an IR scan is done? Should the buss duct be re-torqued on a regular basis — can it hurt? Is it overkill?

Bus Duck? The only buses we've got are at the bus stop and the ducks are at the lake! I don't need no stinkin' Bus Duck!

What's the purpose of backflow preventers and where are they located? Should they be tested? What's the difference between a sanitary drain and a storm drain? Is one *really* sanitary? On your chillers: what's your delta T across the condenser? How about the Delta P? What is a delta teepee, anyway? What about fire systems — how often should I test the smoke detectors? Sprinklers? Fire extinguishers? Elevator recall? Whose riding the jockey pump? How do you know if it's right? How do you know if it's wrong? Is anyone — *you* — responsible to know and act on these things? Ignorance ain't necessarily bliss.

As Building Engineers, it is our job to keep all systems working and safe. But we're not born knowing all the answers — most of us come into this field from another specialty: AC, electrical, plumbing, carpentry, etc. If you want to become proficient in all areas, you've got to study 'em, you've got to *work* at it. Because SAABE has always been a firm believer in education — and to show that you do have "what it takes" to do the job — we long ago came up with the Certified Building Engineer (CBE). The qualifications for the CBE (there are three different levels) consist of both experience in the field and education in five core areas (HVAC, electrical, plumbing, boilers and building fire and safety systems) that we consider critical for those in our profession to know.

Recently, we sent our updated CBE application up to the lawyer to look at — make it street legal. She came back with two primary concerns: 1.) The word "certification" may be a legal problem. Who are we to certify someone? 2.) LIABILITY — We could possibly open ourselves up to a lawsuit if someone with a CBE messed up.

So...do we continue with the CBE? Change the name? But mostly, is this an important thing for SAABE to pursue — even if it puts us at some risk? Come to the General Membership Meeting, Wednesday, September 15, for an open discussion on this issue. Hashing this out will undoubtedly cause some heat, but it's always better to test under these controlled conditions than to burn down the house.

Free Software to Impress your Boss With!

Did you know that the US Department of Energy is offering software, MotorMaster+3.0, for use in comparing a company's motors with energy-efficient ones and developing costs, savings, and cost-payback information. The software and accompanying User Manual can be downloaded free of charge.

This software may be useful to operations staff at all facilities of a company. MM+3.0 can be installed on a local area network and made available for multiple users. Passwords and levels of access can be established.

Increased energy efficiency lowers the amount of electricity needed from electric power plants and lowers their combustion emissions. In a sense, it is a form of pollution prevention (P2). The District seeks to lower emissions to the ambient atmosphere, and both energy efficiency and pollution prevention improvements are helpful in doing this.

An inventory of the company's motors can be created, and field measurement and repair/status information can be input for each motor.

Individual utility rate schedules can also be input for the company's facilities. Based on the characteristics of the motor being evaluated, the user is provided with a list of potential motor alternatives or replacements, automatically generated from an extensive motor data base that is part of the software. Printouts can be obtained.

The file to be downloaded is an ".EXE" file so it needs to be run, when installed on the computer's hard drive, to expand it and make it usable. It creates an icon for your desktop so it's then easy to run.

The size of the EXE file is shown as about 6.6 MB.

In addition to the software, a User Manual may also be downloaded. It comes in .pdf (about 1 MB) and .doc (about .9 MB) versions. A tutorial is provided near the end of the Manual.

Here are the steps:

- 1 - Go to www.motor.doe.gov.
- 2 - On the screen that appears, click "Main Menu - Motor Challenge Program".
- 3 - On the next screen, click "Software".
- 4 - On the next screen, click "MotorMaster+3.0 Now Available".
- 5 - On the next screen, click "Downloadable File".
- 6 - On the next screen, click "Download Motormaster+". It is one of six items and you may want to check out the content of these other items.
- 7 - The next screen is a registration form. After filling it out, click at the bottom to register and follow the process.
- 8 - You will get to a page that is called the "MotorMaster+3.0 Software Download Page", showing different items that may be downloaded. Select "Complete Package" and follow the instructions provided. The last item on this page is "MM+3.0 User Manual". You can select the version you want and download it. There is a tutorial at the end of the User Manual. Note that at the top of this "Download Page", there is phone number for assistance: (800) 862-2086.

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Ready and/or Not — Y2K & WCS

by Tom Lasater

Building engineers all over the world hope and pray Y2K will be no more than a little bump in the road but if it turns out to be a big sink hole are you ready and/or not? Preparation and testing for worst case scenario hopefully will not be needed but will have us ready for any future natural disasters or equipment or utility company failures.

I) Power goes off but is restored for just short intervals with inherent spikes and/or brownouts before complete restoration on noon Monday. Is your generator ready — full tank of fuel — known runtime — spare fuel filter for stoppage — additional fuel available on the weekend — etc.? Do you know the specific areas powered by the system and should other essential areas be included (new tenants with HVAC needs for communications equipment, etc.)? Have you additional personnel to assist you to monitor equipment, to turn off power to sensitive electronic/computer equipment for power restoration spikes (roof mounted wireless), and to pick up additional fuel if needed?

II) You have BOMA or other type forms filled out and returned to you from your vendors verifying Y2K readiness

for computers controlling your cooling towers, boilers, building fire and safety, and other essential equipment but at the stroke of midnight it goes into 'error' or locks up — are you ready? Have you run any weekend tests with the above mentioned equipment off and building personnel controlling the systems manually? Can you mechanically read temperatures, pressures, damper positions, etc. or are they all electronic readouts? Do you have enough engineering personnel to control the manual operation of motor control centers, valve positions, fire and building safety?

III) City water is off for an extended period but with its return an inrush of air, rust, and various other bits of unwelcome debris to plug aerators, orifices, strainers, and ballcocks. Are building engineers available to shut off domestic water pumps to keep seals from rupturing and/or bearings from seizing? And will your personnel be ready to monitor the system status for a return to normal when water is restored?

And finally — get ready — get ready — get ready!!!!

Education Corner

by Mike Lusk

At the last general membership meeting, someone requested that we provide a list of places where you can get the courses you need in your jobs. Well, there isn't a list per se, but I provide information on various sources throughout the year. Some of the sources are fairly constant in regard to availability (such as St. Philips College and BOMI), while others come and go on a sporadic basis (TEEX, for example). Today I am providing information on courses, relevant to many of you, which are available at St. Philips College. Even though the fall semester has already started, course catalogs for the 1999-2000 school year were not available at the time this is being written. They should be available in the next month. So you have an opportunity to plan ahead, get permission and budget (or get your money together).

Two Air Conditioning, Heating and Refrigeration programs are available. The one-year program results in a Certificate of Completion, and the two-year course results

in an Associate of Applied Science Degree. The programs offer four curriculum options that enable students to choose training in a number of specialty areas such as Air Conditioning and Heating or Refrigeration Technology. The programs prepare students to enter the field as an installation, service or repair technician, or cost estimator. Instruction covers the areas of electrical circuits and controls, system design and cost estimating, as well as offering study and practice in installing, servicing and repairing of heating, air conditioning, refrigeration, air distribution and filtering systems. Approximately one-half of course time is devoted to hands-on work in well-equipped labs. Upon completion, you should be prepared to work in residential, commercial and industrial applications.

The cost \$250.00 per semester (you must supply your own tools). For more information and details, the phone number is 921-4841/4842 at the Southwest campus.

Next month, the electrical trades.

What Goes Down, Also Goes Back Up! (Part one of two)

How many times have you been in a building, and gave that means of vertical transportation any thought? The elevators have actually come a long way since multiple relays and centrifugal governors! There is a tremendous amount of accessories and/or features which are incorporated into the higher end class of elevators. Some of which you may not have even realized. There are also a fair number of myths, which we will try to correct.

BASICS

In general, there are three different types of elevators. The first, is the gearless traction type. The second, is the gear driven-traction type. The third type, is your hydraulic (or Hydro). The type of elevator within a building is greatly determined by the height of the building or structure, the desired speed of travel (fpm), and third, by the elevator allowance determined during the design.

As listed in above order, the gearless type is of the greatest expense. This type of elevator is easily identified by the motor and assembly located in the penthouse. You will generally have a motor with the sheave attached directly to the motor. These elevators have a noticeably smoother operation than any other type. They also have the fastest speed (I have heard that there is some elevators in the Far East, that operate around 1800/fpm).

The gear driven elevator, is also easily identified by the gearbox (usually covered with oil), located between the sheave and the motor. Although not as fast as gearless, one manufacturer has posted speed greater than 400/fpm. The gear driven are also more economical (up front), than others.

The last, is the old Hydro. This type has also come a long way recently. Typically, however high the cab had to travel, there was a hole down below just as deep for the cylinder. Manufacturers have now gotten away from the single stage piston, and are implementing multiple stages of operation thus, opening a new avenue in the use of Hydro's. Typically, around 75' used to be about the limit of height for Hydro's; I'm sure that barrier has been passed by now.

MYTHS

OK, how many of you can recall how many elevator malfunctions were being called in after two movies came out? The first was when someone on "Dallas" stepped into an elevator after the hatch doors opened, only to find there was no cab present! The second, was when the movie

Speed came out. The disturbing thing about Speed was they basically showed everyone how to take out an elevator and its safeties.

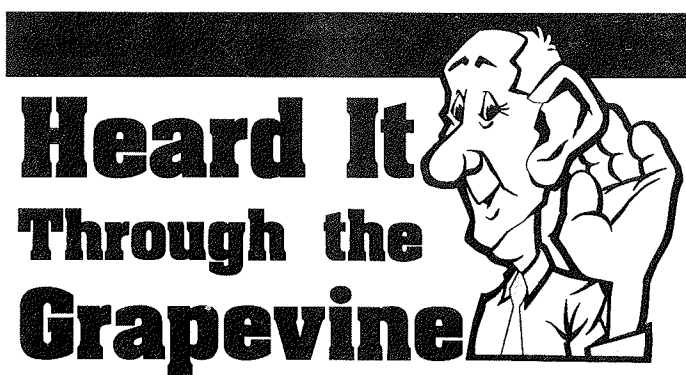
First biggest myth about traction elevators (Hydro's not included). "The elevator fell down two floors". This sounds very logical, but is not scientifically possible. If an elevator were to free wheel, "it will fall up, not down". How? Typically, in this application, four or more ropes, are cat-headed to the penthouse floor. From there, the ropes travel down and around the sheave of the counterweights, back up and around the sheave on the motor in the penthouse, then back down and around to the sheave on the top of the elevator cab, then finally, back up to the penthouse where they are again cat-headed. Whew, been around a time or two! OK, now you know how the ropes are laced, but why would an elevator free wheel up? First, the counterweights are heavier than the elevator, even when it's fully loaded. Secondly, the motor does not actually lift the elevator, it actually lifts the counterweights which lowers the elevator. Literally, you have to push an elevator down, it free wheels back up! Are we lost yet?

Additionally, of the ropes, typically only one rope is necessary to support the load of the counterweights and the cab. The main reasons for multiple ropes is to reduce the wear of the ropes and to increase the traction.

Next Month: FASCINATING FEATURES

Closing Thought! If you shoot a mime, do you have to use a silencer?

"Just a Maintenance Man"



- Richard Wells has replaced Tim McElroy as Maintenance Technician at The Pyramid Building.



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of Building Engineers**
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SAABE TIMES September Issue	Pick up your 1999 Membership Directory at the September Luncheon
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**Membership Luncheon
September 15, 1999**

Time: 11:30 a.m.

Location: Tex's Restaurant
in the Airport Hilton

Topic: An open discussion on the
Certified Building Engineer Program

Sponsor: SAABE

Upcoming Events

- October 14:** Seminar and Trade Show
- October 20:** Luncheon sponsored by
Munters Moisture Control

The SAABE Times is produced monthly for the San Antonio
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