



SAABE TIMES

A Publication of the San Antonio Association of Building Engineers

July, 2001

Mark Your Calendar —

Building Automation

Robert Gleeson, president of Alamo Controls, Inc. will discuss building automation developed around open standards and web-based technologies at our July luncheon.

Building software utilizing open, standard communications using BACnet, LonWorks, MODBUS and SNMP at the same time, which will run on Windows, Linux and Sun Solaris, will be used during the presentation.

Alamo Controls offers leading edge technology for the commercial facility market in the energy management, temperature controls, and building safety arenas.

The company performs its own technical installation, start up, warranty, and service work with factory certified technicians.

They offer registered professional engineering and CADD services via an in-house staff.

Alamo Controls is NEBB certified in Air, Hydronic, Vibration and Water. All NEBB services are offered and managed in the San Antonio region.

Education Corner

by Kenny Aguilar

Classes being offered:

Chillers: Operation of Chilled Water Systems: August 14-16, San Antonio, TX; July 31-August 2, El Paso, TX; August 7-9, Houston, TX, NTT, 800-922-2820, Cost: \$1,195.00 per person.

Insko Schools

R410A Certification: July 26th, August 23rd. One day class from 8am to 5pm, Cost \$135.00 includes CD-ROM, student workbooks, A/C learning manual. Registration form must be received and confirmed prior to class date. Contact Stan Soulaire at 210-828-9981 for registration form and confirmation of date.

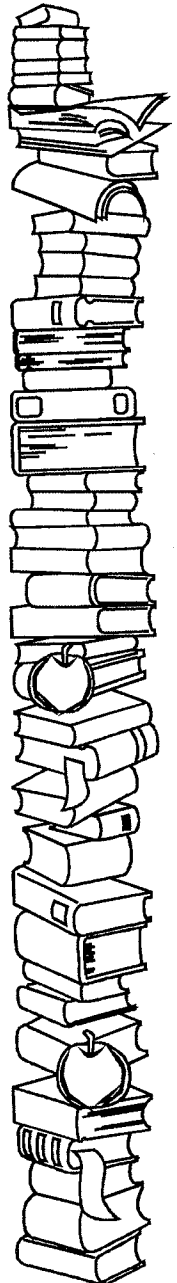
Construction Data's Texas Air Conditioning Contractor License Computer Exam Preparation: July 20-22, Austin. All seminars held on Friday, Saturday, and Sunday. Instructor: Jay Peters. Guarantee: One time-lifetime, free reviews if necessary. Cost: \$450.00, TACCA Members: \$400.00. Call 888-500-PASS for registration and information or log on to hvacandplumbing.com.

McQuay Training Courses

Screw Compressor Chiller Maintenance and Operation: Stauton, VA. August 21-24, October 9-12. Cost \$1,100.

Centrifugal Chiller Maintenance and Operation: Stauton, VA. August 21-24, October 9-12. Cost \$1,100.

For more information contact Linda Custer at McQuay International in Stauton at P.O. Box 2510, Stauton, VA 24402-2510. Telephone 540-248-9646, Fax 540-248-9210, or email at linda.custer@mcquay.com.



A Message from the President by Elena C. Castillo

Standby/Rescue Procedures

Procedures for Safety in Confined Spaces apply to any situation where one must act quickly and competently to prevent injury or even death to themselves or anyone else. The main factors to consider in standby/rescue procedures are duty, training, acting, and preserving life.

A person outside a confined space or similar circumstances must be trained to remain cognizant of their surroundings so they can assist in any situation, emergency or not.

1. Standby Person

a. The standby person should have only one duty. His job is to remain in constant contact (visual or speech) with any personnel in a confined space or similar circumstances without entering such space.

b. He should know whom to contact in case of emergency, and should NEVER enter a confined space until help arrives. Then, and only then, with proper protective equipment, lifelines, and respirators, he should assist emergency personnel in rescue procedures.

NOTE: Over 50% of workers who die in confined spaces are attempting to rescue other workers.

All emergency equipment must be sound, inspected on a regular basis, and used appropriately in any given situation.

2. Rescue Procedures and Emergency Equipment

a. Rescuers must be trained in established emergency procedures and learn to use appropriate equipment and techniques. (i.e., lifelines, respiratory protection, standby persons, etc.)

b. Safe rescue steps should be included in confined space procedures. Rescue drills should be well planned and conducted on a frequent basis to ensure personnel will respond in an instinctive manner.

c. An unplanned rescue, as when someone rushes in to rescue a co-worker, can easily result in a double fatality, or multiple if there are more than one would-be rescuers.

d. Respirators are devices that allow workers to safely breathe without inhaling toxic gases or particles. The air-purifying respirator filters dangerous substances from the air. The air-supplying respirator delivers a supply of safe breathing air from a tank or an uncontaminated area nearby. Choose the right one for the job, and learn the use and limitations of each type of respirator available.

NOTE: Only air-supplying respirators should be used in confined spaces where there is not enough oxygen. Remember, an oxygen-deficient atmosphere of 19.5% is only the minimum allowed for safe entry.

3. Consider the following potential hazards before entering confined spaces:

a. Temperature Extremes can be a terrifying problem. For example, if the confined space or boiler tank has been steamed, no entry should be attempted until the space has cooled down.

b. Excessive Noise in a confined space can damage hearing because it is amplified by the design and acoustical properties of the space. It can also affect communication, as either the person inside the space or outside may not hear a shouted warning.

c. Slick/Wet Surfaces can also pose a dangerous threat to personnel. Injury or death can occur if workers slip or fall. Also, a wet or puddled surface, as in a confined space, will increase the chances for electrical shock where electrical circuits, equipment, and tools are to be used. REMINDER: Water is an excellent conductor of electricity.

d. Falling Objects usually go straight to your head. Be mindful of working under topside openings, or wear a safety helmet.

4. Permit.

The permit is an authorization in writing by the building owner that states that the space has been tested by a qualified person, that the space is safe for entry; what precautions, equipment, etc. are required; and what work is to be performed.

Checklist

Before entering any confined space, consider every question and determine whether the area is safe. By following the checklist below, you will be able to evaluate the confined space. OSHA's recommendation for safe entry is as follows: (Answer yes or no)

Cleaning

- Has the space been cleaned before entry is made?
- Was the space steamed?
- If so, was it allowed to cool?

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A Message from the President

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Clothing/Equipment Checklist

- Is special clothing required (boots, chemical suits, glasses, etc.)? If so, specify.
- Is special equipment required (e.g., rescue equipment, communications equipment, etc.)? If so, specify.
- Are special tools required (e.g., sparkproof)? If so, specify.

Respiratory Protection Checklist

- Are MSHA/NIOSH-approved respirators of the type required available at the worksite?
- Is respiratory protection required (e.g., air-purifying, supplied air, self-contained breathing apparatus, etc.)? If so, specify.
- Can you get through the opening while wearing a respirator? (If you don't know, find out before you try to enter.)

Training Checklist

- Have you been trained in proper use of a respirator? (Yes, there is training in that, too.)
- Have you received first aid/CPR training? (If not, get all workers and employees to receive this lifesaving training.)
- Have you been trained in confined space entry and do you know what to look for?

Standby/Rescue Checklist

- Will there be a standby person on the outside in constant visual or auditory communication with the person on the inside?

- Will the standby person be able to see and/or hear the person inside at all times?
- Has the standby person(s) been trained in rescue procedures?
- Will safety lines and harness be required to remove a person?
- Are company rescue procedures available to be followed in the event of an emergency?
- Are you familiar with emergency rescue procedures?
- Do you know who to notify and how in the event of an emergency? Do your office personnel?

Permits

- Has a confined space entry permit been issued?
- Does the permit include a list of emergency telephone numbers?

If the guidelines for confined spaces are followed, fatalities will be prevented. Personnel not trained in safety or rescue procedures put themselves and other "rescuers" in danger. Take the time, read these guidelines and procedures, train yourself and other maintenance personnel to respond in the most sensible manner. Plan a course of action and post it next to the confined space. Have your emergency equipment handy, and perform regularly scheduled practice rescue drills.

REMEMBER: An unplanned rescue will probably be your LAST.

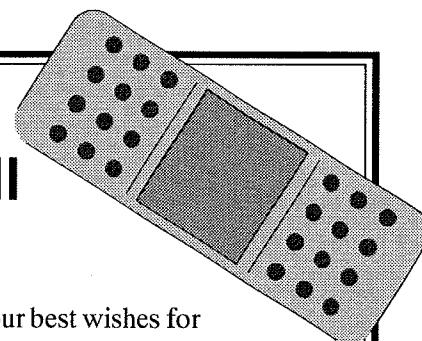
Celebrities Among Us

For those of you that subscribe to the Air Conditioning Today magazine, our very own SAABE president, Elena Castillo, is pictured in the magazine with Luis Villarreal, assistant building engineer at Grubb & Ellis, and Mark Salinas, building engineer at Ogle Enterprises at the "2001 Space Odyssey" trade show held in May. Are they popular or what? It features schedules for ongoing educational sessions with different organizations, and you may find some great deals on parts and equipment. See for yourself . . . you can pick up the magazine at just about any supply house.

If you are interested in subscribing to the magazine, you may contact Joe Eaton at 877-669-4228 (Toll Free), Fax: 830-627-0614, or E-Mail: jeaton@ac-today.com.

Get Well Soon

We're sending our best wishes for a speedy recovery to our First Vice President, Tom Lasater. Tom was injured after receiving an electrical shock while at work at The Carlyle. He'll need some surgery on his shoulder and expects a full recovery.



Customer Relationships

Question: How do you handle an irate customer?

Answer: Matt Accardi of TDIndustries has this to say:

In our field we encounter different situations which require us to use our common sense as well as our empathy for people. We all have customers – engineers have their building managers and tenants, suppliers have the engineers and service companies, and service and construction companies, like ours, have the general contractors, building engineers, property managers and tenants. This is a chain that holds us together by links of communication. These links can be like steel or rubber bands.

Sometimes by the time a problem gets to us, it has been communicated and re-communicated through numerous different links, which might not all be of the steel variety. Before an issue can be resolved, these links must first be strengthened or shortened so that you are talking with the right links.


One situation that stands out in my mind is when a property manager's tenant was without air-conditioning. The tenant was screaming because of the heat (and we all know that can make us really yell). The property manager's assistants called up several service companies and finally decided TDIndustries should do the work. We received the call and the assistant told us that they would get the compressor and

have it waiting on site for us (a practice that they do in the Dallas area, not San Antonio, where they don't have maintenance personnel.) The tenant was screaming at the manager, who was yelling at her assistant, and the assistant was calling the TDI dispatcher, trying to light a fire under the technician to get the job done. But they were unable to, as no compressor was available and they were catching "shrapnel" from the tenant.

I resolved the problem by directly contacting the irate manager herself. I told her we could not wait for their compressor to fix the problem. I then spoke with the tenant and smoothed things over with her. I got the techs pointed in the right direction and had the A/C up and running that same day.


The real issue here was not that the A/C was out; it was the chain of communication had broken down and needed to be reinforced. When all was said and done, I had a new property management customer, her tenant was happy, and our techs and internal personnel were reinforced by their trust in me to straighten out these "irate and impossible" customers.

This all took about half an hour because of good communication——the kind steel chains are made of.



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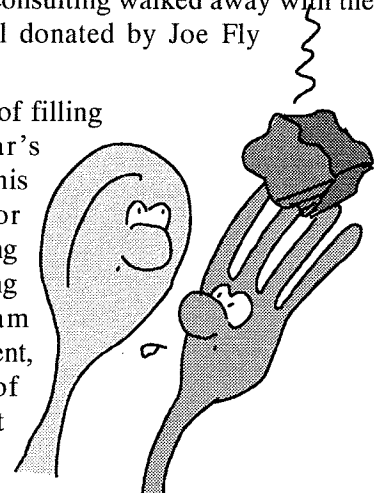




Luncheon Sponsors

Thanks to June's luncheon sponsor! LaRue Coleman, owner of JOBS Building Services and Aluminum Maintenance Systems of Texas (AMST) presented a fabulous program on window washing liability. He had everyone's attention and every person walked away with loads of valuable information. At the end of the meeting, George Muyres of GJM Consulting walked away with the door prize, a fishing reel donated by Joe Fly Company.

We are in the process of filling sponsors for next year's luncheon programs, as this year is already full. For information about scheduling a presentation, or sponsoring an educational program provided by a city department, contact Mike Alvarez of Carrier Building Systems at 495-2600.



Classy Buildings

The SABOMA office occasionally gets calls regarding a specific definition of Class A, Class B, and Class C property classifications. These terms are used frequently in the commercial real estate market and represent a subjective quality rating of buildings which indicates the competitive ability of each building to attract similar types of tenants. A combination of factors including rent, building finishes, system standards and efficiency, building amenities, location and accessibility, and market perception are used as relative measures. These definitions are used in reporting office market conditions that differentiate among the classes and are not to be used as a rating for individual properties.

Class A: Most prestigious buildings competing for premier office users with rents above average for the area. Buildings have high quality finishes, state of the art systems, exceptional accessibility and a definite market presence.

Class B: Buildings competing for a wide range of users with rents in the average range for the area. Building finishes are fair to good for the area and systems are adequate, but the building does not compete with Class A at the same price.

Class C: Buildings competing for tenants requiring functional space at rents below the average for the area.

Source: Office Market Terms and Definitions, BOMA International, ©1990

Tax-Free Days Around the Corner

Parents who shop for back-to-school clothes, mark your calendars for August 3-6. Texas has designated these days as Tax-Free Days. Certain purchases made on these days will not be taxed.

Place Your Company's Ad Here!

For information on advertising in the SAABE Newsletter, please call the membership office at (830) 981-5223 (metro).

Relief for Frequent Flyers

If you're one of the many airplane travelers who experience clogged or painful ears during or after a flight, doctors at the American Academy of Otolaryngology-Head and Neck Surgery have some suggestions for minimizing discomfort.

The problem occurs when pressure in the middle ear builds up and cannot be equalized, leading to stretching of the eardrum. This can be painful and also prevents the eardrum from vibrating naturally, which could affect your hearing temporarily.

Swallowing and yawning bring relief because they help normalize the pressure in the middle ear. Trying to exhale forcefully through the nose while pinching it shut is another remedy.

For a baby, sucking on a bottle or pacifier may help equalize middle-ear pressure. Also, many experienced air travelers use a decongestant pill or nasal spray an hour or so before descent, as this shrinks ear membranes and helps them pop more easily.

(Thanks to UPI Science News Writer Norra Macready)

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HVAC Piping & Ducting Systems!

(Part One of Three)

The HVAC system is an assembly of components for the treatment of air conveyed into a conditioned space.

Heating means raising the temperature of the air going into the conditioned space.

Ventilation is supplying air or removing air from a space by natural or mechanical means. Ventilation of the conditioned space is for outdoor air requirements, make-up air for the exhaust systems, and to pressurize the conditioned space.

Air Conditioning is described as conditioning the temperature, humidity, and cleanliness of the air to meet the requirements of the conditioned space.

HVAC HYDRONIC PIPING SYSTEMS

Hydronics is the process of heating or cooling with water. Some of the classifications for hydronic piping systems are open, closed, series loop, one-pipe, two-pipe, three-pipe, four-pipe, direct return, reverse-return, and combination. Hydronic systems are generally either two- or four-pipe heating and cooling circuits. These piping circuits provide heated or chilled water to coils in central air-handling units, fan-coil units, ductwork, and terminal boxes. Hydronic coils are also found in unit heaters, valence units, and in fin-tube radiation.

Open and Closed Hydronic Piping Systems

An open system has a break in the piping and the water is "open" to the atmosphere. A closed system has no break in the piping and the water is "closed" to the atmosphere. A typical air conditioning chiller gives examples of both the open and closed piping system. The water-cooled condenser and cooling tower loop of the air conditioning system is an open piping system. The loop from the chiller to the chilled water coil is a closed piping system.

Series Loop and One-Pipe System

A series loop piping system is a continuous run of pipe, generally limited to residential and small commercial heating applications. Supply water is pumped through each coil in the series and then back to the boiler. The advantage of this type of piping arrangement is that it is simple and inexpensive. The disadvantage is that if repairs are needed on any coil, the whole system must be shut down and drained. Additionally, it is impossible to provide a separate capacity control to any individual coil since "valving down" one coil reduces flow to all the down line coils. These

disadvantages can be partly remedied by designing the piping with two or more circuits and installing balancing valves in each circuit to create a split series loop.

The one-pipe circuit uses a single main loop and individual space control for residential, small commercial and industrial applications. This piping arrangement differs from a series loop system, with each coil connected by an individual supply and return branch pipe to the main loop. The advantage of the one-pipe main over the series loop is that each coil can be separately controlled and serviced by installing valves in the branches. However, if there are too many coils, the water temperature farthest from the boiler may not be adequate to heat the space.

Two-Pipe Systems

Two-pipe systems are used to ensure that the water temperature to each coil is the same as the water temperature leaving the boiler or chiller. This should be the case if there are no water leaks and the piping is properly insulated. Because the water supply temperature is the same at each coil, two-pipe systems can be used for any size application. Two-pipe arrangements have two mains, one for supply water and one for return water. Each coil is connected by a supply and return branch to its respective main. This design allows for separate control and servicing of each coil. The return connections from the coils can be made either direct- or reverse-return.

Three-Pipe Systems

A three-pipe system has two supply mains and one return main. One supply circulates chilled water from the chiller(s), and the other supply circulates the heated water from the boiler(s). The return main carries water from each coil back to either the chiller or boiler. The return connections from the coils can be made either direct- or reverse return. A three-way valve at the inlet of each coil delivers either cold or hot water to the coil. The supply streams are not mixed. When both the hot and cold water are available, any coil can either heat or cool without regard to the operation of any other coil. During the spring and fall, there are times that the HVAC system is simultaneously heating and cooling, with the return pipe carrying a mixture of both hot and cold water. The result is that both the chiller and the boiler receive warm water and must use more energy in order to supply their proper water temperature. Three-pipe systems use

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HVAC Piping & Ducting Systems!

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les piping than four-pipe systems and therefore are less expensive on initial cost, but they use more energy, resulting in greater long-term costs.

Four-Pipe Systems

A four-pipe system consists of two separate two-pipe arrangements. One two-pipe system is used for chilled water; the other is used for hot water. No mixing occurs. The return connections from the coils can be made either direct- or reverse-return. The air-handling unit usually has two separate water coils, one for heating, and one for cooling. The water flow through each coil is controlled by either a two- or three-way modulating valve.

Direct- and Reverse-Return Pipe Systems

A direct-return piping system is routed to bring the water back to the pump by the shortest possible path. The heating or cooling coils are piped so that the first coil supplied is the first returned and the last coil supplied is the last returned. Balancing valves are required for flow adjustments since water will follow the path of least resistance. The coils closest to the pump will tend to receive too much water, while the coils farthest from the pump will be starved. A reverse-return piping system is routed so the length of the circuit to each coil and back to the pump is essentially equal

in pressure drop. The coils are piped so that the first coil supplied is the last returned, and the last coil supplied is the first returned. Reverse-return systems generally need more piping than direct-return systems.

Reverse-return systems are sometimes considered self-balancing because the intent of the design is to have equal pressure drops throughout the loop. However, because of varying circumstances in design or installation, reverse-return systems are usually not self-balancing, and balancing valves are still required for proper flow adjustments.

Combination Piping Systems

A piping system can contain many of the piping arrangements mentioned. But names for piping systems become meaningless as pipe lengths and number or types of coils vary, and piping arrangements are combined. What is important is the system volume of water flow in gallons per minute (gpm), the water head pressure in pounds per square inch (psi) or feet of water, and the water temperature. These values must be measured to determine the performance of the Hydronic system.

CHARLIE'S LAW: The circuit always knows what it is doing; it is up to you, to find out what it is doing!

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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.

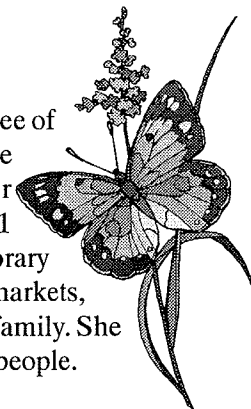
In Memoriam

James Leonard May

James Leonard May, of ThyssenKrupp Elevator, passed away June 11, 2001. He was Vice President of the International Union of Elevator Constructors, Local 81. James is survived by his loving wife, Diane May and their two children, Nikki and James, Jr.; mother, Joyce May; grandmother Abbie Jones; and numerous other family members and friends.

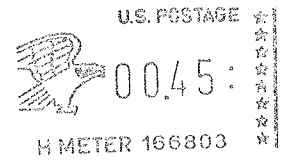
Joyce Hebert

Joyce Hebert, a long time employee of the Trane Company, passed away June 13, 2001. She is survived by her husband, their four children and 11 grandchildren. She enjoyed contemporary Christian music, shopping at flea markets, camping and being with friends and family. She enjoyed her work and meeting new people.





**San Antonio Association
of Building Engineers**
P.O. Box 691861
San Antonio, TX 78269



Charles H. Mikolajczyk, Jr., CBE
Endeavor Real Estate Group
8000 IH 10 W, Suite 250
San Antonio TX 78230

SAABE TIMES

Final Thought —

“Football combines the two worst features of American life. It is violence punctuated by committee meetings.” — George Will, journalist

2001 Board of Directors

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**Membership Luncheon
July 18, 2001**

Time: 11:30 a.m.

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

Topic: Building Automation

Speaker: Bob Gleeson

Sponsor: Alamo Controls

Upcoming Luncheons:

August 15, 2001: Program by Munters Corp.
Topic: Houston Flood

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



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