SAABE TIMES

A Publication of the San Antonio Association of Building Engineers *January, 2001*

Mark Your Calendar —

"What Is a Building Inspector?"

Join us Wednesday, January 17th as we kick off our 2001 membership luncheon schedule. Michael Clack, Chief Building Inspector for the City of San Antonio, will speak about the duties of the building inspections department. Tenant finish-out and certificates of occupancy will also be addressed.

Michael Clack has been the City of San Antonio's Chief Building Inspector since 1991. He received his "Certified Building Official" designation from the Council of Building Officials in 1992. From 1993 to 1997, Michael served on the ICBO Evaluation Service Committee, and in in 1998 served as Chairman/Moderator.

George Perez, Building Inspector, will also be in attendance to answer any additional questions.

Trade Show Just Around the Corner

The Trade Show Committee is beginning its work planning the May 10th show. If you would like to serve on this committee, please let Lynn Forester know by calling (830) 981-5223.

Education Corner

By Paul Thompson

Happy New Year! As you all probably know by now, Mike Lusk (who's been doing this column since dinosaurs ruled the Earth) is no longer with SAABE. We'll miss you, Mikey! So ... who wants to be the new Education Director? For now, this is a listing of education seminars coming to town:

National Fire Alarm Code (NFPA72): San Antonio, March 5 & 6, $745.00; NTT 800-922-2820.

Basics of Industrial Electricity: San Antonio, February 1 & 2, $395.00 per day or $695.00 for both; PTA 800-208-6108.

Introduction to Uniform Plumbing Code: San Antonio, March 14 & 15, $695.00; NTT 800-922-2820.

Training Program for Energy Managers: San Antonio, February 5-9, $1495.00; AEE 770-925-9633.

Introduction to the National Electrical Code 1999: San Antonio, April 3-5, $985.00; NTT 800-922-2820.

Introduction to Grounding and Bonding: Austin, February 21-22, $695.00; NTT 800-922-2820.

Hands-On Electrical Troubleshooting: San Antonio, February 21 & 22, $349.00 per day or $649.00 for both; Lewellyn 800-872-9397.

Managing Construction Projects: Madison, Wisconsin, March 5-6, $1195.00; University of Wisconsin 800-348-8964.

Controlling Construction Costs: Madison, Wisconsin, March 7-9, $1395.00; University of Wisconsin 800-348-8964

SAABE Needs You!

We will be taking nominations for the position of Education Director at the January General Membership Meeting. The job involves monthly attendance at the Board of Directors meeting (lunch on the first Wednesday of each month) and submission of an Education Corner article for each newsletter.

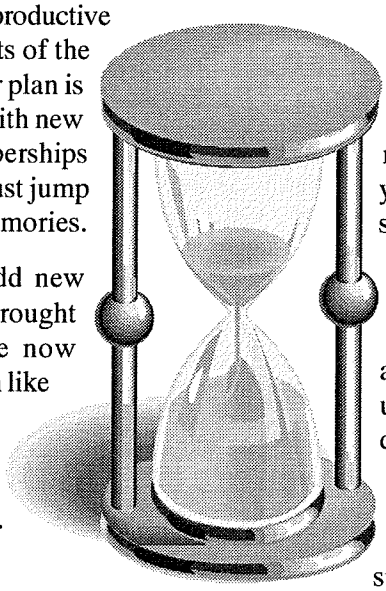
A Message from the President by Elena C. Castillo

The New Millennium

We have entered the new millennium with new presidents. That is, George Bush, and me, Elena Castillo.

The nation's President, George Bush, has an influential circle of politicians who will help him make major worldwide decisions as well as changes to our common welfare. Of course, most of those decisions will be made with or without our consent. They will say "It is for the common good". I hope so.

As President of the San Antonio Association of Building Engineers, I hope my time in office will be as productive as the previous presidents. With my "Knights of the Round Table", aka the Board of Officers, our plan is to focus on 2001 and educate the members with new products and ideas, as well as build up memberships and relationships. But before I continue, I must jump to the past and reflect on some wonderful memories.



- During the last reign, we set out to add new members to the association, and thus, brought our membership up so much, we are now crammed into the Barn Door meeting room like sardines. How exciting! Of course, we have to thank the associate members who provided the motivational tool, *ahem*, encouraging factor, *ahem, okay*, money. Good driving force.
- And then there were the building engineers who conducted tours of their buildings, who not only proved to the few that attended, but also substantiated their worth that they are really the ones who run the show.
- The roofing seminar held last year by Cram Roofing was spectacular! I left the seminar with the desire to replace my roof!
- Contributions were also made by the Association to two schools so that they could encourage and motivate their students to grow by giving them available funds, uniforms, learning tools, and supplies.
- Then again, we cannot forget the luncheon sponsors who spoke every month last year, even the ones that were supposed to speak i.e., Bomb Squad. *Who?* We need to remember the great job they did in teaching us and refreshing our memories when they spoke to us about public safety, DDC controls, roofing materials and applications, VFD motors and controls, savings on correct lighting applications, reducing electrical costs and decreasing electrical downtime. These sponsors have given us so much! Hats off to them!

This year, which is the REAL MILLENNIUM, new thoughts and ideas are already being created and **formed** by members as well as the Board of Officers. Some of these ideas include a website, currently being pieced together by our very own members. Anyone with general computer Internet knowledge is enthusiastically invited to help speed up our SAABE website.

SAABE encourages further public promotion for associate members by taking advantage of newsletter ads, which give considerable exposure every month to the vendors. How many times does an inquisitive person look over your desk and sees the SAABE TIMES just sitting there? None, you say? Then, PUT IT ON YOUR DESK!

The luncheons will continue to provide outstanding and informative programs for attending members. Quality time is important to us, so be prepared to participate in many question-answer sessions. To help offset the cost of the total luncheon this year, all associate members and guests will pay $10.00 for their meal. The membership has grown so much that sponsors are finding it difficult to foot a bill for $600, if not more. Of course, not much can be said for the lunch plate itself, but we are working on that.

The SAABE/BOMA Trade Show promises a good time this year. May 10th is the scheduled date for this event. We will order denim shirts with the same SAABE logo; however, we can only order around 65 shirts, unless we receive a bargain. So we do encourage your attendance at the Trade Show as soon as it opens to receive your shirt. Regular members are also encouraged to help out at the SAABE booth for at least 15 minutes apiece.

Some of my goals this year are:

We will strive to deliver the SAABE TIMES a week before the meeting.

We will also deliver 2001 SAABE directories on time in August.

We encourage regular members to schedule building tours. Of the current regular members, I know we can arrange more than the two we had last year. Besides, how else can you add to your brag sheet to become the next BEOTY?

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A Message From the President

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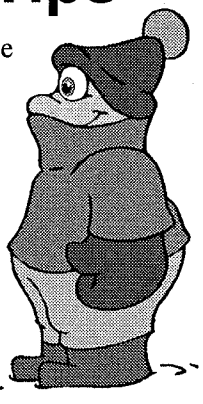
Associate members can also receive extra recognition by sponsoring seminars. On previous occasions, people have walked away with loads of information to use at their building locations. Vendors have so much to offer, and trade shows are great publicity efforts, but holding seminars almost gives you one-to-one contact information with prospective clients.

Last, but not least, SAABE is brewing up an end of year certificate list for all volunteers providing some kind of service. Serving on a trade show committee or even volunteering 15 minutes at the SAABE booth, BEOTY committee, being an officer, automatically signs you up on the list. Give us your time and reap your reward at the end of the year.

In closing, I know I can rely on the Board Members and Luncheon Sponsors to attain our goals and strive to educate the members to become better building engineers and vendors.

Winter Safety Tips



As wintery weather blankets much of the nation, the American Red Cross urges families to take precautions to keep safe.

"Keeping safe and warm in cold weather means you have to take care of home heating hazards, dressing appropriately and preparing for cold weather emergencies," urges Connie Harvey, health and safety expert at American Red Cross national headquarters. Some precautions:

Be careful with candles. Keep candles away from combustible materials. Don't leave children unattended in a room with lit candles. Keep candles, matches and lighters out of the reach of children. Never display lighted candles in windows or near exits.

Inspect fireplaces and wood stoves. Have your chimney connections and flues inspected by a professional and cleaned if necessary prior to the start of every heating season. Use a sturdy screen when burning fires. Burn only wood — never burn paper or pine boughs. Do not hang holiday decorations from or on your fireplace if you plan to use it as a heat source.

Check smoke detectors. Make sure they're working properly and that new batteries are installed.

Don't overload your electrical outlets. Be careful of extension cords that present hazardous walkways.

Mittens provide more warmth to your hands than gloves. Most of your body heat is lost through your head so wear a hat, preferably one that covers your ears.

Dress in warm layers so you can remove items if you get too warm.

Recognize the symptoms of hypothermia that can be a serious medical condition: confusion, dizziness, exhaustion and severe shivering. Seek medical attention immediately if you have these symptoms.

Recognize frostbite warning signs: gray, white or yellow skin discoloration, numbness, waxy feeling skin. Seek medical attention immediately if you have these symptoms. Wear waterproof, insulated boots to help avoid hypothermia or frostbite by keeping your feet warm and dry and to maintain your footing in ice and snow.

Get out of wet clothes immediately and warm the core body temperature with a blanket or warm fluids like hot cider or soup. Avoid drinking caffeine or alcohol if you expect you or someone you are trying to help has hypothermia or frostbite.

Source: www.redcross.org

Tech Talk #44

by The Charlie

Grounding, Bonding, and Water Pipes! (Part Two of Two)

Equipment Grounding and Bonding

In grounded systems that serve a structure's wiring, the voltage between ungrounded conductors, or live wires, and the ground or grounded objects is predetermined. If the electrical equipment's insulation fails, it could produce a ground fault that energizes the metal non-current carrying parts of the system, creating a shock hazard to anyone coming in contact with the equipment while also in contact with earth or a grounded object. To reduce this effect, an equipment grounding conductor in the form of an insulated conductor and a metal raceway system is installed.

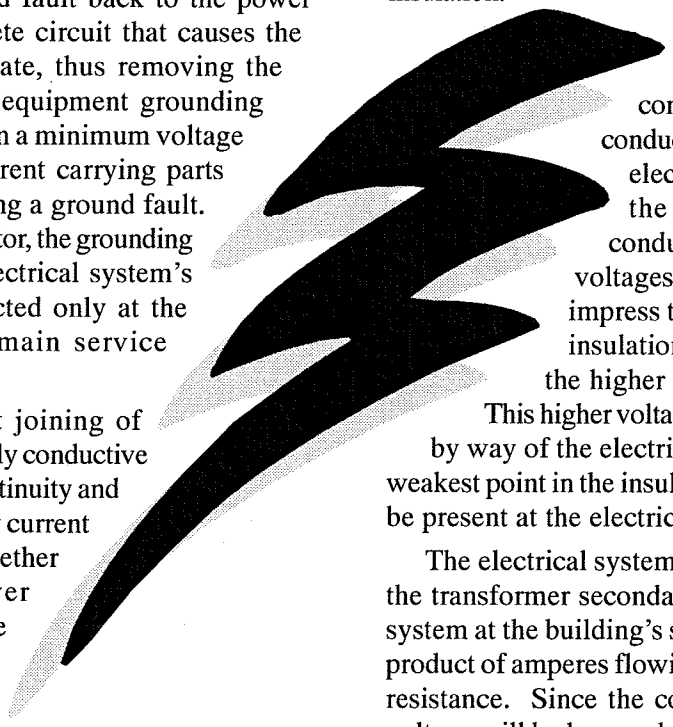
The equipment grounding conductor provides a low resistance path from the ground fault back to the power source in the form of a complete circuit that causes the fuse or circuit breaker to operate, thus removing the voltage from the circuit. The equipment grounding conductor also serves to maintain a minimum voltage difference between the non-current carrying parts of an electrical installation during a ground fault. The equipment grounding conductor, the grounding electrode conductor, and the electrical system's grounded conductor are connected only at the main service disconnect or main service distribution panel board.

Bonding is the "permanent joining of metallic parts to form an electrically conductive path that will ensure electrical continuity and the capacity to conduct safely any current likely to be imposed upon it," whether due to high voltage crossover between high and low voltage systems, to lightning strikes on power lines or equipment insulation failures.

Bonding jumpers minimize the voltage, or potential, difference between conductive materials. Metal piping is bonded to establish an equal potential, or zero voltage, between it and other grounded objects should one be energized. When two different metallic piping systems emerge from the ground, leakage currents can flow through the earth to the piping systems, which can pick them up and become energized. By bonding the two systems with a low resistance conductor, the voltage between them approaches zero. Voltage equals the product of amperes and resistance. If the resistance approaches zero, so does the voltage.

Ground fault scenario

When proper grounding and bonding perform as intended, lives are saved and fires are prevented. Electricity enters a structure from the utility by way of a transformer, which reduces the high voltage of the utility to a voltage that can safely be used. These transformers contain primary windings, with voltage that may vary from 2,500 to 35,000 volts, and secondary windings, with voltage of 480/277 in a typical three phase system. Additional transformers are located throughout a structure to reduce/step down the 480/277 voltage, to a voltage of 208/120 which can be used in everyday appliances etc. These windings are separated by insulation.



If the insulation between the high voltage transformer primary conductors and low voltage secondary conductors breaks down, anyone touching electrical equipment while standing on the ground or holding a grounded conductor could be exposed to elevated voltages. The higher voltage conductors impress that of the lower voltage conductor insulation, which breaks down, impressing the higher voltage on the 208/120 volt lines. This higher voltage then travels into a building wiring by way of the electrical service and breaks through the weakest point in the insulation, causing the higher voltage to be present at the electrical appliance or device.

The electrical systems in your building are grounded at the transformer secondary and to the grounding electrode system at the building's service panel board. Voltage is the product of amperes flowing through the conductor, times its resistance. Since the conductor is of low resistance, the voltage will be low, and if the voltage is low, the amount of current will also be low. The low resistance bonding conductor or equipment grounding conductor is in parallel with the human body, which means that the current will pass through the path of lowest resistance.

To minimize the risk of injury to occupants of buildings in which sprinkler piping is installed, bond the sprinkler piping systems to the electrical grounding system, and to the buildings metal framework if applicable. This raises two questions: Is the sprinkler's main water supply being used as the electrical grounding electrode? And is there an

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electrical connection between the sprinkler system and the electrical grounding system?

When an effectively grounded metal structural member of a building or an effectively grounded metal water pipe within 5 feet (1.5 meters) of the building's entrance point are available, Sections 250-50 of the NEC requires that they be bonded together to become the building's grounding electrode system. Where these aren't available, some other electrode specified in Sections 250-50 and 250-52 must be used.

A 6 inch sprinkler main would be a good electrode, but Section 8-3.5 of NFPA 24 prohibits using it as such. Sprinkler or water systems with a die-electric isolator in the main would not satisfy the requirements for a grounding electrode either. However, the NEC doesn't prohibit bonding the interior piping to the electrical system. Section 250-14(C) of the NEC requires that piping which may become energized be bonded to the service equipment, or grounding electrode system.

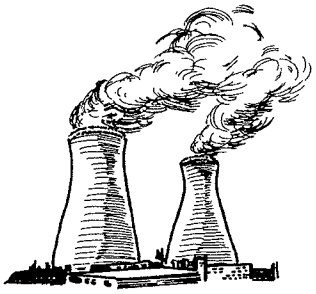
In electric fire and domestic water pump installations, the equipment grounding conductor is a wire. The metal piping is connected to the pump's metal case, which is bolted to the electrical motor so that the piping is in electrical contact with the grounding system. Installing a bonding jumper between the electrical grounding system and the water/sprinkler piping only allows the connection to decrease the voltage differential under a ground-fault condition, making it safer.

The intentional bonding of all the utilities in a building creates an equipotential ground plane that minimizes the voltage differential between the different systems under both normal, and abnormal conditions. The result is an environment safer from the hazards of electrocution and fire.

Charlie's Law: Never start major projects on Mondays or Fridays. Mondays will always dictate your weekdays, and Fridays will always dictate your weekends!

"Just a Maintenance Man"

Did You Know...



...that on December 31, 1970: The Clean Air Act Signed Into Law?

The formation of the Environmental Protection Agency, along with the Clean Air Act of 1970, marked an important shift in the United States' national policy to control air pollution. Previously, the federal government had mostly played an advisory or educational role. But the Clean Air Act, signed into law by President Nixon on the last day of 1970, established demanding standards for air quality, set limits on allowable emissions, set deadlines for meeting those standards and limits, and provided for enforcement by both state and federal governments. It is seen as the start of modern efforts to control air pollution in the U.S.

Background and history of the Clean Air Act:
http://humber.northnet.org/earth/wind8.htm
http://www.cleanairtrust.org/nepa2cercla.html

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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.

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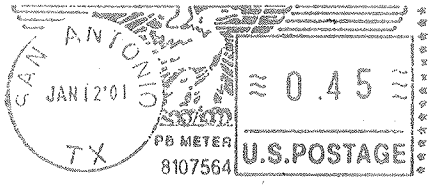

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SAABE TIMES
January Issue

Final Thought —

"The most aggravating thing about the younger generation is that I no longer belong to it." — Albert Einstein

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Membership Luncheon
January 17, 2001

Time: 11:30 a.m.

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

Topic: "What is a Building Inspector?"

Speaker: Michael Clack, Chief Building Inspector for City of San Antonio

Sponsor: SAABE

Upcoming Luncheon:

February 21, 2001

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

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