February 2013 Volume 26, Issue 1

www.sbe.org

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BIMONTHLY PUBLICATION OF THE SOCIETY OF BROADCAST ENGINEERS

Two presentations added to Ennes Workshop at NAB Show

The 18th annual Ennes Workshop, presented by the Society of Broadcast Engineers in cooperation with PBS at the 2013 NAB Show's Broadcast Engineering Conference, will be held on Saturday, April 6 in Las Vegas, Nev. The title of the day-long program is, Alternate Broadcast Delivery – How it Works. Admission to the Ennes Workshop at the 2013 NAB Show is included with full-conference registration packages. Register at NAB.org.

THE

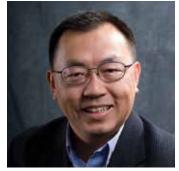
Two presentations have been added to the program, first announced in the December issue of The Signal.

Providing an OTT Service – How Skitter Works, will be presented by Robert Saunders, president of Skitter. Understanding the market for OTT (Web) content and who the consumers are of this new product, defines how to design the next generation delivery platform for live TV. Skitter has created technology and delivery partnerships focused on providing live TV to OTT enabled devices.

MPEG-DASH TUTORIAL, presented by Campbell Foster, marketing director at Adobe Media and Ad Solutions. Dynamic Adaptive bit-rate streaming over HTTP (DASH) enables high quality streaming of media content over the Internet delivered from conventional HTTP web servers. This is a brief tutorial on what makes MPEG-DASH what it is, and where it might lead.

Ennes Workshop presentations announced earlier include:

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So Vang, Vice President, Video Technology, Cable Television Laboratories, Inc. will present Cable... Moving to IP during the Ennes Workshop at the 2013 NAB Show.

SBE introduces on-line Member Directory and Buyers' Guide

The SBE has, for the first time, published its SBE Membership Directory and Buyers' Guide electronically. The web-based member service provides a fast and more accurate way to locate other members, suppliers and information about the SBE. The new SBE Membership Directory and Buyers' Guide is located at the SBE website, www.sbe.org. Members access the directory by going to the website homepage and clicking on the membership directory link in the upper right corner of the page. There, you'll find a table of contents similar to that provided in the paper directory we have published since 1995.

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The new directory contains member and chapter roster search systems, a chapter locater, an alphabetical listing of Sustaining Members (suppliers) as well as a classified section searchable by the services and products these companies offer. The supplier classified listings include names of sales representatives, live website and email links and telephone numbers.

Another feature from the paper directory that continues in the web-based service is the list of members who advertise their services as contract or consulting engineers. The list is alphabetical by

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Broadcast Engineers Are The Unsung Heroes of Radio

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BSW'S SUPER HERO SEARCHLIGHT

Now it's time to belt it out! Every single day, engineers put it all on the line to make sure that radio is always ON. **Do you** have a story about how an engineer super hero (maybe you) saved the day? Send it to us and we'll spread the word (and maybe spread a few special prizes around to boot)!

Email your story and photos to hero@bswusa.com





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The Signal is published bimonthly by the Society of Broadcast Engineers, Inc., 9102 North Meridian Street, Suite 150, Indianapolis, IN 46260. Questions or comments regarding editorial content, or design should be referred to John Poray at (317) 846-9000 or jporay@sbe.org. For advertising, contact Debbie Hennessey at dhennessey@sbe.org. SBE is a registered trademark of the Society of Broadcast Engineers.

SBE events and exhibits at the 2013 NAB Show

The Society of Broadcast Engineers is gearing up for this year's NAB Show in Las Vegas. The SBE returns to its convention center, south hall, second floor exhibit location with booth hours Sunday through Thursday. The NAB Broadcast Engineering Conference, which SBE coproduces with the NAB, will be located nearby, in the South Hall second floor meeting rooms.

The SBE exhibit booth will have technical publications, the SBE radio and television operator handbooks, certification and member pins, SBE logo items, information about membership, certification and education programs. Prize drawings will be held at the booth Monday through Wednesday.

Attendees may apply for membership at the booth. Members of the SBE national Board of Directors and national staff will be at the booth to answer questions about membership, certification, educational programs, regulatory issues, local chapters and more.

SBE spring membership meeting

The spring SBE Membership Meeting will be held on Tuesday, April 9 from 5 p.m. to 6 p.m. in the LVCC South Hall. The room is to be announced. SBE will recognize several local chapter certification chairmen during the meeting and give away some nice prizes to those attending. We are pleased to welcome Vislink News and Entertainment again as our sponsor for this year's membership meeting.

Registration discounts for SBE members

Members of the SBE can register for the NAB convention at a special partner rate, a savings of \$100 off the NAB non-member rate for the Smart Pass or Flex Pass. To get the discount, SBE members register using the regular NAB on-line registration form. When completing the form, type in the special SBE Partner Code,

CQ

Certification Question answer on page 15

You have a series of switches and/or bridges to install in a facility. Due to various installation issues, you will have to place as many as seven of these units between LAN stations. To what networking standard should you refer to learn if this is acceptable or recommended?

a. IEEE 802.11 b. IEEE 802.1D c. IEEE 802.2 d. IEEE 802.2B





LETTER FROM THE PRESIDENT by Ralph Hogan, CPBE, DRB, CBNE SBE President

A look back at 2012

rhogan@kjzz.org

The SBE has accomplished much during the past year in serving its more than 5,100 members. Through the SBE 2012 theme, Connecting Our Future, the society encouraged members to connect with fellow broadcast engineers and invite non-members to join the society and support the profession. The SBE is the only organization devoted to the advancement of all levels and types of broadcast engineering.

Along with all of the society's tremendous accomplishments for 2012, we also had a tremendous loss. John Battison passed on August 28, 2012 at the age of 96. John had the distinction of holding membership #1, being the founder of the Society of Broadcast Engineers, first SBE President, and SBE Fellow. He won the 2006 SBE Lifetime Achievement Award. John is the namesake of the John H. Battison Award for Lifetime Achievement and John H. Battison SBE Founder's Scholarship. John will be truly missed.

During the summer of 2012 the SBE held a strategic planning conference to define the future course of the SBE. The society enlisted a pair of facilitators to lead the group through the day-long strategic planning process. Looking at the future, the group said we needed to identify whom the members of the society should or could be and reach out to them, understanding that technology and other factors continue to change the roles our members play and the skill sets they are expected to have. Revamp our awards program to include more local awards. They also said we needed to look how the society brands itself to reflect these changes. Finally, the group recommended we need to use the unique opportunity of the society's 50th anniversary, which comes in 2014, to demonstrate to the broadcast industry and the public the importance that our members play in this business and that the SBE continues to adapt to meet the needs of its members.

The society has greatly enhanced its social media outreach to members. In the last two years, the SBE has created a LinkedIn group, which now numbers more than 5,500 people, Facebook page and group, and Twitter account. Joining that stable of social media outlets is the new SBE membership blog. Followers of the SBE blog are connected to information from the SBE national office about new developments in membership, chapter news, certification, education and regulatory issues. We have even created a new award, Best Social Media Site. It recognizes the chapter that best uses social media to update members on SBE chapter and industry information.

There were a number of enhanced member services instituted in 2012. The society introduced a new publication design for The Signal, the bimonthly publication of the Society of Broadcast Engineers. The popular SBE television and radio operator handbooks are now available in digital format through Amazon and Barnes & Noble. The latest SBE Membership Directory and Buyers' Guide is now available on-line. Access is via the SBE website and includes just about everything that was contained in previous paper versions. Two areas of the directory are for members only; the member search and chapter roster search features. Besides being web-based, the new directory has a major difference from the previous paper versions. A number of areas are tied to the SBE membership database and SBE staff can update the directory whenever changes to member information warrants. This feature includes member and Sustaining Member listings (both alphabetical and classified) and contract and consulting engineer listings. This makes the directory the most up-to-date we've ever published.

2012 was the first year the society offered online voting. The annual election of the board of directors ended with a record 1,313 ballots being cast. The number of ballots cast represented a 64% increase over the 802 cast in 2011. Twenty-seven percent of voting members exercised their right to vote, up from 16% in 2011. It appears that electronic voting really had a positive effect on the turnout.

The Ennes Educational Foundation Trust awarded three scholarships to broadcast engineering and technology students to further a career in the technical aspects of broadcasting.

New dues rates went into effect on January 1, 2013. The SBE Board of Directors approved an increase in several categories of membership dues at our meeting last fall. The increases are necessary to keep up with higher operating costs. Dues for Regular, Associate, Senior and Fellow members, last raised two years ago, are now \$75 per year. Dues for Student Members increased to \$25. Sustaining Member dues

increased to \$650 per year. Even with these rate increases, SBE dues are still below all other national professional technical societies within the broadcasting industry.

Our certification program continues to flourish. The Certified Broadcast Networking Engineer, CBNE, was introduced during the 2012 NAB Show. The CBNE CertPreview sample test software was updated to include sample questions for the CBNE exam. In the first eight months that the CBNE has been available, 24 individuals have obtained this new certification. There were 381 new certifications earned in 2012 with Certified Television Operator leading the way with 112 successful applicants and Certified Broadcast Technologist followed with 86. Re-certifications totaled 296 and the SBE awarded 39 Life certifications, including seven Certified Professional Broadcast Engineer and ten Certified Broadcast Networking Technologist certifications. The SBE awarded a total of 716 certifications last vear.

Members of the SBE saw a host of new education offerings in 2012, with total registrations of 1,417. That's over 400 more registrations than in 2011.

A new SBE University course released was the ENG Truck Operations Course. It's designed to help the broadcast engineer by offering truck operations training for their non-technical personnel. Another course released this year was the Use of SNMP in Broadcast Monitoring and Control Systems. This course provides an overview of the Simple Network Management Protocol, or SNMP, and how it can be beneficial to broadcast engineers in today's environment.

The SBE took the Ennes Workshop to El Paso, Texas, Cleveland, Ohio, Las Vegas, Nev. at the NAB Show, and Orlando, Fla. This one day, affordable workshop presented in various areas across the country, continues to be a popular program.

Webinars by SBE continues to be a convenient resource for the busy engineering and/or IT professional. Popular webinar subjects in 2012 included Chief Operator Responsibilities, Springtime Maintenance to Keep You on the Air and TV White Space Devices and Wireless Microphones.

The SBE partnered with ATSC to present three day-long seminars to help broadcasters prepare for the CALM Act that went into effect on December 13, 2012. The seminars were well received, with a total of 97 people attending in Los Angeles, Chicago and Atlanta.

The SBE Government Relations Committee (GRC) monitors FCC actions for potential problems that the working broadcast engineer might face. Positions and opinions of the Society of Broadcast Engineers during 2012 are posted on the Legislative/Advocacy page on the SBE website. These include the FCC Technical Resource Act, Broadcast Auxiliary Services, Additional Spectrum for Medical Devices, National Broadband Plan and EAS.

The SBE National Frequency Coordination Committee has also been active over the past year with the FCC National Broadband Plan and the U.S. Presidential election.

More than 70 SBE members took advantage of a special station set up at the SBE booth during the 2012 NAB Show to write a letter to their U.S. Representative, asking him or her to co-sponsor

Recognize achievement with a nomination for an SBE National Award

Nominate an SBE member or chapter that you believe goes above and beyond the call of duty in their jobs, the broadcasting industry and to the SBE. Often times these efforts go unrecognized. Don't let that happen this year. Nominate a deserving individual or SBE chapter for a national SBE award.

Nominations are being accepted for the following awards: Best Chapter Newsletter, Most Interactive Chapter, Best Chapter Website, Best Social Media Site, Best Technical Article, Book or Program by an SBE Member, SBE Technology Award and Best Chapter Newsletter. Also, the Best Regional Convention or Conference, Best Chapter Frequency Coordination Effort, Best Article, Paper or Program by a Student Member.

The top two individual awards presented by the SBE each year are the Robert W. Flanders SBE Engineer of the Year and the James C. Wulliman SBE Educator of the Year.

To nominate a worthy individual or chapter, go to the SBE website to download and submit the nomination form. Nominations are due by June 15, 2013. Winners will be notified in July and the awards will be presented during the SBE National Meeting in October in Indianapolis. All of the SBE National Awards were created to recognize the efforts that members and chapters make. For additional information, please contact Megan Clappe at mclappe@sbe.org or (317) 846-9000 at the SBE national office. H.R. 2102, the FCC Technical Resource Act. SBE leadership also made several trips to Washington to meet with senators and congresspersons to seek support for the H.R. 2102 bill. Although we were not successful last year, we plan to meet with both the Senate and House again this session to move this legislation forward for the benefit of broadcasters.

On December 9, 2011 the FCC issued a 58page "Order on Remand" which adopted new procedures to ensure that the environmental effects of proposed new tower structures, and certain changes to existing tower structures, are carefully evaluated with regard to migratory bird collisions and other environmental issues of a local and national concern. As a result, there is now an environmental notification process that an applicant for the registration of an antenna structure must undertake before filing a completed Antenna Structure Registration (ASR) application on FCC Form 854.

On January 10, 2012, the FCC released its

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- Streaming Media Tutorial—Jan Ozer, author, Streaming Media Magazine and Online Video.net
- Audio Video Bridging—Steve Lampen, multimedia technology manager, Belden
- Mobile Devices Location and Authentication Technologies; What they are, and How They Could Benefit the Broadcasting Industry— Lionel J. Garin, Ph.D., senior director of technology, position and location department, Qualcomm Atheros, Inc.
- Making Integrated Production Systems Work — Dr. Andrew Cross, chief technology officer, NewTek, Inc.
- Cable... Moving to IP—So Vang, Vice President, Video Technology, Cable Television Laboratories, Inc
- Internet Video Delivery Solution Case Study — Paul Adrian, principle, latakoo
- Meet Granville Klink James E. O'Neal, technical editor, TV Technology magazine.
- "Talkin' 'bout my generation"— Media Consumption Patterns— Myths and Realities
 John Footen, assistant vice president, broadcast and advertising, Cognizant Technology Solutions
- Fragmentation—the Challenge New Media Faces Reaching Consumers— Jake Sigal, founder and CEO, Livio Radio
- AES X192—Kevin Gross, media network consultant, AVA Networks
- Multicasting in a Unicast World— John Maniccia, sales engineer, Octoshape

Organizers of the Ennes Workshop are Frederick M. Baumgartner, CPBE, SBE, member of the Education Committee and trustee of the Ennes Educational Foundation Trust, and Tom Mikkelsen, a senior engineering, operations and project management executive at National TeleConsultants. Fifth Report and Order on EB Docket 04-296 regarding the Emergency Alert System. The report implemented CAP into the EAS rules and revised the Part 11 Rules.

At the end of March, the FCC issued two orders interpreting the Local Community Radio Act ("LCRA") which was passed by Congress in late 2010. The FCC also clarified other issues affecting the LPFM service. This may impact some of our members. The FCC also took a look at updating its RF Exposure regulations that will eventually impact all broadcasters.

In 2013 the SBE will work on recommendations from the strategic planning session last summer, begin a mentoring program for new broadcast engineers, grow our education program, update the certification exam database for select certifications, refresh CertPreview and continually monitor FCC actions that affect membership. Your membership and participation contribute greatly to the ability of the SBE to meet these challenges.

DIRECTORY from page 1

state and includes live email and website links for these companies and a short description of the services they offer. The new directory also includes information on SBE programs and services, the SBE National Awards, contact information for the national board of directors, committees and staff, and SBE history.

The new directory is updated as many as five times each week with changes to member and company listings from the master database at the SBE headquarters. This capability makes it the most accurate SBE directory ever. The member and chapter roster search features of the directory can only be accessed by current members. Members login using their member number and unique password. If you've forgotten your log-in or password, just click on the prompt at the login page to have them sent to you automatically via email.

The new SBE Membership Directory and Buyers' Guide is a quick and handy way to stay in touch with other broadcast engineers and find the engineering help, supplier or equipment you need in a hurry. It's as close as www.sbe.org.



The new SBE Membership Directory and Buyers' Guide includes all the features from previous printed editions.



LEGAL PERSPECTIVE by Chris Imlay, CBT SBE General Counsel cimlay@sbe.org

No Sports, No News, No Special Events?

You are all aware of the potential effect on TV broadcast channels of the FCC's plan for incentive auction of TV band spectrum for broadband use. You are also likely aware of the potential that this, and the addition of TV White Spaces devices to the "unused" broadcast channels will have for disrupting local ENG and sports and special event video production by precluding wireless microphones in the TV bands. Those issues are getting all the industry press. But it is what is behind the scenes in the implementation of the National Broadband Plan (NBP) that really worries me. And there isn't much noise about this out on the street at the moment. But the street is where broadcasters use the 2 GHz BAS band -at least for now- and broadcasters' use of that band is now in some danger.

After rebanding at 2 GHz in order to accommodate the mobile satellite service at 1990-2025 MHz, the 2 GHz band is now 2025-2110 MHz. BAS licensees received new, digital equipment courtesy of Sprint/ Nextel as part of the rebanding process. One would have thought that the 2 GHz band, having undergone such a radical transformation very recently, and given the extremely heavy use of the band for ENG on a daily basis in virtually all television markets, would be in no jeopardy as a target band for broadband reallocation pursuant to the NBP. Indeed, the 2 GHz BAS band was not listed by NTIA or FCC in their list of candidate bands for broadband reallocation that was first prepared in 2010. So far, so good.

But looking at the bands that FCC proposed to reallocate directly for broadband use was only the first part of an NBP threat analysis. The other part is to figure out where NTIA and FCC plan to put those services (mostly Federal government services, and especially military telecom facilities) that are displaced from the bands that are to be reallocated for broadband use. This latter analysis is one to which broadcast engineers should pay attention.

In late November of 2012, NTIA published a status report on the implementation of the NBP, entitled the *Third Interim Progress Report* on the Ten Year Plan

and Timetable. It is available on the NTIA web site (www.ntia.doc.gov). That Report illustrated no direct threats of reallocation of Broadcast Auxiliary Spectrum for broadband domestically, except of course for the repacking of the TV Broadcast band and its associated effect on wireless microphones. However, The Report at Footnote 14 refers to an earlier NTIA document released in March of 2011 (also available on the NTIA web site) entitled "An Assessment of the Viability of Accommodating Wireless Broadband in the 1755-1850 MHz Band." There are lists in that Assessment of "comparable bands" (i.e. bands to which NTIA believes that government facilities now operating at 1755-1850 MHz could move if that band is repurposed for broadband use). Here is what the Report says (in part) about where government facilities could be moved:

While the analyses summarized in this report indicate there are a number of challenges to repurposing, NTIA concludes that it is possible to repurpose all 95 megahertz of spectrum between 1755-1850 MHz. The following challenges require satisfactory resolution:

NTIA and the FCC will need to allocate comparable spectrum (unless federal agencies achieve comparable capabilities via alternate means) to accommodate federal operations currently performed in the 1755-1850 MHz band under any clearing scenario. These comparable spectrum allocations must provide federal agencies with primary regulatory status. Under the approach studied in this report, the DOD identified the 2025-2110 MHz band, which is currently allocated to the commercial BAS and federal space operations, as its preferred option to relocate most of its operations. Other options, including the potential for co-primary sharing with incumbent BAS, should be studied further.

Any broadcast engineer familiar with the 2 GHz band knows how difficult it would be to share spectrum with a substantial number of government facilities in this band on a daily basis. And there really are no other bands that BAS could have that would be comparable to 2 GHz if we were ousted from 2 GHz.

The NTIA March, 2011 document lists all of the incumbent uses of the 1755-1850 MHz band fixed, point-to-point microwave; military tactical radio relay; air combat training systems; precision-guided munitions; tracking, telemetry and commanding; aeronautical mobile telemetry; video surveillance; unmanned aerial systems; electronic warfare testing, training and exercises; software defined radio systems; and tactical targeting networks. Some list!

Now, don't panic. Not all of these Federal uses would move to the 2 GHz BAS band. It is not clear that even some of these Federal government systems could be moved from 1755-1850 MHz to 2025-2110 MHz. This is because Federal law requires that broadband spectrum auction proceeds from reallocated spectrum must exceed expected Federal government facility relocation costs. Since federal relocation costs are expected to be high, it is not clear that they can be moved out of 1755-1850 MHz at all. The auction proceeds received from broadband companies for this spectrum might not be high enough to cover the tab.

But suppose they did move those very important Federal government facilities into the 2 GHz band. The NTIA report indicates that BAS would have to move out or share with the military uses that would be added to the 2 GHz band. Any way you look at this, if that plan came together it would be a disaster for ENG and video production of events. Discussions I have had with knowledgeable sources in the last few days indicate that the government's strategy generally is to promote increased sharing of government bands where possible (instead of relocation of government facilities), using polite protocol, cognitive radio equipment. But those same sources tell me that a decision about 1755-1850 MHz will be made in all likelihood in the next 3 months or so, and that the only band being actively considered as replacement spectrum (if any is needed) is 2025-2110 MHz. Stay tuned.

Fellow Nominations due March 15

Nominations for the Fellow membership grade, the highest membership level within the Society of Broadcast Engineers, are due by March 15. The Fellow designation is awarded only to those nominated by members and elected by the national board of directors. The board considers nominations for Fellow annually, at the spring meeting of the board held during the NAB Show.

Fellow members of the SBE have rendered

conspicuous service to the SBE or have made valuable contributions to the advancement of broadcast engineering or its allied professions. Candidates for SBE Fellow are proposed in writing by a voting member. The nomination must include a cover letter, professional history of the nominee, and be endorsed by at least five other voting members. Nominations are submitted to the chairman of the SBE Fellowship Committee, Troy Pennington, CSRE, CBNT. If approved by the board, the nominee is notified and a presentation is made at the fall SBE National Meeting. The nomination process is conducted in confidence. Nominees should not be made aware that they have been nominated.

Submit your nominations to: Troy Pennington, CSRE CBNT, Fellowship Committee Chairman, 6156 Hampton Hall Way, Hermitage, Tenn. 37076 or to troy. pennington@cumulus.com.

CERTIFICATION UPDATE

David Priester, CPBE Member, SBE National Certification Committee dpreister@ithaca.edu

Which SBE certification is right for you?

As the local certification chairman for Chapter 140 in Ithaca, N.Y. and a member of the National Certification Committee, I often get the question, "What certification is right for me?" The answer is not as clear cut as it may seem. Let me give a quick rundown of the certifications that SBE offers.

The SBE certification program offers 15 different certifications at varying levels. Those levels are what I tend to look at first when trying to help someone decide what certification to test for. The levels of certification are based on how many years of broadcast engineering experience you have. You can substitute a bachelors or associates degree towards part of that experience. SBE offers entry-level certifications, and certifications at a minimum experience of five, ten and twenty years.

So the first question I may ask you is, "How many years of experience do you have in the broadcast engineering field?" Once that has been determined, then we can go to the different certifications. For almost every level that SBE offers a certification, there is a radio or television option. Once we can determine that option, the choices become more obvious.

The next step is the type of test that you would like to take. Most of the certification exams are 50 multiple choice questions, open book and a total of three hours allotted to take the exam. There are three different levels that also contain an essay question that needs to be answered and that portion of the exam is closed book. These levels include the senior radio and television engineer exams, the Digital Radio Broadcast, 8-VSB and AM Directional Specialist exams, and the new Certified Broadcast Networking Engineer exam. Sometimes the idea of answering an essay question is a little unnerving for the test taker and he or she may opt to first take a certification that doesn't require an essay, just to get a feel for the exam. That's alright, but let me assure you that when you are taking an exam with an essay, that essay will relate to your work experience.

So here's a scenario: Let's say you have been working in the television industry for seven years and you have a Bachelors degree. That is a total of 11 years of broadcast engineering experience. You would then qualify for the entry-level, five year level and ten year level of certifications. From here, you would decide if you want to test with an essay or not.

A recent issue of The Signal featured a chart on the different certification levels and how they relate. That chart is available on the SBE's website, www.sbe.org. Also available at the website are articles on how certification questions are created and graded. Visit the main Certification page on the website.

If you have any questions regarding which certification is right for you, contact your local chapter certification chair, or SBE Certification Director, Megan Clappe at the national office, at mclappe@sbe.org or (317) 846-9000.

Membership renewal begins in February

The annual membership renewal period begins in early February. President Ralph Hogan, CPBE, DRB, CBNE provides a comprehensive look back at accomplishments of the SBE in 2012 and takes a look ahead at what the Society has planned for 2013 in his column, which appears in this issue of The Signal. Don't miss out. Be sure to renew your membership by April 1. The SBE is the only professional organization dedicated solely to the advancement of the broadcast engineer and the field of broadcast engineering.

Those in the Member, Senior, Student, Associate and Fellow membership categories will receive their renewal form in the mail during the first week of February. Members are encouraged to renew online at http://www.sbe.org, or may complete the paper form and mail or fax it with payment information to the SBE National Office. The online system is a quick, complete and secure renewal method available 24/7. An automated email message is sent to the renewing member confirming renewal and payment.

As announced in early November 2012, an increase in membership dues took affect on January 1, 2013. Dues for Member, Senior, Fellow and Associate members are now \$75 per year. Membership dues for Student members are \$25 per year. Membership dues may be paid using a personal or company check, money order, debit or credit card including MasterCard, VISA or American Express.

Life members are automatically renewed each year with no form to complete and no payment is required. Members wishing to apply for Life membership complete a short application form and pay a one-time, \$75 fee. The form is available on the SBE website under the Membership tab. To qualify for Life membership, a member must be fully retired from the industry and have been a member of the SBE for ten consecutive years at the time of Life member application.

Youth (high school) and Sustaining Members (suppliers) renew in the anniversary month of their membership. Dues for Youth members remain at \$10 per year. Membership dues for Sustaining Members are now \$650 per year.

The SBE will again be conducting the election of its national board of directors electronically in 2013. Members have the opportunity at renewal time to opt out of the electronic vote and receive the ballot in the mail. Just check the appropriate box on the electronic or paper renewal form. Members are encouraged to vote electronically as it is quick and easy, and saves the society printing and postage cost. In 2012, the first year of electronic voting, there was a 66% increase in member participation in the election. Ninety percent of the ballots were cast electronically. Members with questions about renewal, or those who do not receive a renewal reminder by February 15, should contact Scott Jones at the SBE National Office at (317) 846-9000 or kjones@sbe.org.



New SBE Certification Achievements congratulations

LIFE CERTIFICATION	Certified Professional Broadcast Engineers® and certified senior broadcast engineers who have maintained SBE certification continuously for 20 years, are at least 59 ½ years od and are current members of SBE may be granted Life Certification if so requested. All certified who have retired from regular full-time employment and are at least 59 ½ years old may be granted Life Certification if they so request. If the request is approved, the person will continue in his/her current level of certification for life. Certified Broadcast Technologist® (CBT®) John Krepol, Hockessin, Del. – Chapter 18			
NEWLY CERTIFIED CPBE	Applicant must have had 20 years of professional broadcast engineering or related technologies experience in radio and/or television. The candidate must be currently certified on the Certified Senior Broadcast Engineer® level. Certified Professional Broadcast Engineer® (CPBE®) Jerry Shorter, Menifee, Calif. – Chapter 131			
NOVEMBER EXAMS	Certified Senior Television Engineer TM (CSTE®) Roger Newton, Tulsa, Okla. – Chapter 56 Norman Wright, Half Moon Bay, Calif. – Chapter 40 Certified Broadcast Radio Engineer TM (CBRE®) Luke Brannon, Lindale, Ga – Chapter 5 David Dybas, Buffalo Grove, III. – Chapter 26 Bret Huggins, San Antonio, Texas – Chapter 69 Kelly Kitleson, Parker, Colo. – Chapter 48 Christopher Miller, Northumberland, Pa. – Chapter 2 Certified Broadcast Television Engineer TM (CBTE®) Timothy Coucke, Big Lake, Minn. – Chapter 17	Jeffrey Martin, Bowling Green, Ky. – Chapter 103 Certified Audio Engineer® (CEA®) Jackson Portwood, Seatle, Wash. – Chapter 16 Certified Video Engineer® (CEV®) William DeFelice, Monroe, Conn. – Chapter 14 Certified Broadcast Networking Engineer™ (CENE™) Andrew Dart, Ducamille, Texas – Chapter 67 Randall Hisle, Williamsburg, Va. – Chapter 54 Christopher Miller, Northumberland, Pa. – Chapter 2	Gerald Mitchell, Rockford, III. – Chapter 96 Wayne Murphy, Murrieta, Calif. – Chapter 131 8-VSB Specialist ^{7M} (8-VSB TM) Michael Galik, Dunedin, Fla. – Chapter 39 Certified Broadcast Networking Technologist® (CBNT®) Jakob Foglesong, South Bend, Ind. – Chapter 30 Hugo Isensee, San Antonio, Texas – Chapter 69 Andrew Kennedy, Wausau, Wis. – Chapter 70 Dean Tracy, Riverside, Calif. – Chapter 131 Certified Broadcast Technologist® (CBT™)	Peter Gungel, Forreston, Ill. – Chapter 96 Certified Radio Operator® (CRO®) James Culligan, El Cajon, Calif. – Chapter 36 Certified Television Operator® (CTO®) Mark Daniel Allman, Lower Burrell, Pa. – Chapter 20 Darnell Laval, New York, N.Y. – Chapter 15 Cheryl Lustenberger, Norwood, Mass. – Chapter 11 Jonathan Shuler, Houston, Texas – Chapter 105 Ramon Velez, Palham, N.Y. – Chapter 15
SPECIAL PROCTORED EXAMS	Certified Senior Television Engineer™ (CSTE®) Mark Clem, North Little Rcok, Ark.	Certified Broadcast Networking Technologist® (CBNT Adam Sturgill, Wise, Ya. Jason Waterhouse, Los Angeles, Calif	⑤) ALABAMA BROADCASTERS ASSOCIATION Certified Broadcast Technologist® (CBT®) Patrick Morgan, Lenoir, N.C. Certified Senior Radio Engineer™ (CSRE®) Christopher Johnson, Clanton, Ala. – Chapter	Certified Broadcast Technologist® (CBT®) Kyle Hood, Atlanta, Ga. – Chapter 5 Michael Keith, Helena, Ala. – Chapter 68 Afan Merrida, Alabaster, Ala. – Chapter 68 Brock Round, Northport, Ala. – Chapter 68
COURSE COMPLETION	Certified Broadcast Technologist® (CBT®) DINFOS Jonathan Bednar, Baltimore, Md. – Chapter 46			
CERTIFIED BY LICENSE	Certified Broadcast Technologist (CBT) Larry Ewing, Amarillo, Texas – Chapter 68 David Schmeidel, Indianapolis, Ind. – Chapter 25			
CERTIFIED TELEVISION OPERATOR® (CTO®)	Christian Blair, Bloomfield, N. J. Julia Pack, Valencia, Calif. Gabriel Rosas, Inglewood, Calif. Monique Sims, Burbank, Calif.	New Frontier Media Jack Dyer, Boulder, Colo.	Encompass Digital Media Jessica Bruce, Montebellow, Calif. Jake Dozier, Los Angeles, Calif. Billy Franklin, Woodland Hills, Calif. David Loud, LaVerne, Calif.	Martin Lyons, Los Angeles, Calif. Timothy Lyons, Van Nuys, Calif. Silvia Rincon, Van Nuys, Calif. Miguel Romero, Los Angeles, Calif. Brandon Wurst, Glendale, Calif.
CERTIFIED RADIO OPERATOR® (CRO®)	Mark Baldridge, Hillsboro, Wis. – Chapter 24 Chris Bissonnette, Loomis, Calif. Ryan Gottlieb, Jenkintown, Pa. St. Ambrose University Kyle Porter, Davenport, Iowa	Pasadena City College Arturo Aguirre, Los Angeles, Calif. Jose Arana, San Fernando, Calif. Elizabeth Hall, Altadena, Calif. Derek Hink, Pasadena, Calif. Tom Kernan, Covina, Calif. Javier Solaro Rodriguez, Santa Fe Springs, Calif.	Ithaca College Jessica Afrin, Ithaca, N.Y. Christopher Cramer, Ithaca, N.Y. Marissa Framarini, Ithaca, N.Y.	Parma city schools Brandi Bernow, Parma, Ohio Jesse Braun, Parma, Ohio Emmanuel McCord, Parma Heights, Ohio Eric McGinnis, Parma, Ohio Anna Rencz, Seven Hills, Ohio
RECERTIFICATION	The following applicants completed the recertification p Certified Professional Broadcast Engineer® (CPBE®) James Bernier, Alpharetta, Ga. – Chapter 5 Joe Glym, Old Forge, Pa. – Chapter 2 Jim Hermanson, Middleton, Wis. – Chapter 55 K. Terry Horbatiuk, Caledon East Ontario Canada Michael Hill, Lacey, Wash. – Chapter 16 David Ohmstede, Newton, Iowa – Chapter 109 Donald Renollet, Indianapolis, Ind. – Chapter 25 Certified Professional Broadcast Engineer® (CPBE®) 8-VSB Specialist™ (S-VSB TM) AM Directional Specialist™ (AMD TM) Digital Radio Broadcast Specialist™ (AMD TM) Digital Radio Broadcast Specialist™ (CMB TM) Bruce Ziemienski, Riverside, Calif. – Chapter 131 Certified Senior Radio Broadcast Television Engineer (CSRBTE) John Croft, Jr., Silver Spring, Md. – Chapter 37	Certified Broadcast Radio Engineer™ (CBRE®) William Galdis, Tuscaloosa, Ala. – Chapter 68 Charles Grider, Montgomery, Ala. – Chapter 118 Certified Broadcast Television Engineer™ (CBTE®) Renato Calalang, Orlando, Fla. – Chapter 128 Cesar Leon, Duluth, Ga. Imants Strautin, Saugus, Mass. – Chapter 128 Cesar Leon, Duluth, Ga. Imants Strautin, Saugus, Mass. – Chapter 111 Certified Broadcast Radio Engineer™ (CBRE®) AM Directional specialist™ (AMD™) Ljube Gorogievski, Longwood, Fla. – Chapter 42 Certified Broadcast Networking Technologist® (CBNT®) James Bernier, Alpharetta, Ga. – Chapter 5 Terri Connelly, Sanford, Fla. – Chapter 72 Jim Hermanson, Middleton, Wis. – Chapter 24 Edward Rupp, Austin, Texas – Chapter 79 Bruce Ziemienski, Riverside, Calif. – Chapter 131	h the local chapters and national Certification Committe Certified Broadcast Technologist® (CBT®) Benjamin Allen, II, Beebe, Ark. Mark Blaauboer, Albany, N. Y. – Chapter 58 Marshall Deets, Evansville, Wis. – Chapter 74 Randall Jones, Newman Lake, Wash. – Chapter 24 Randall Jones, Newman Lake, Wash. – Chapter 21 William Kelley, Tacoma, Wash. – Chapter 11 Michael McCormick, Ogallala, Neb. – Chapter 75 Christopher McDonald, Laurel, Md. – Chapter 75 Christopher McDonald, Laurel, Md. – Chapter 75 Tim Mendenhall, Knoville, Fenn. – Chapter 113 Kathleen Morgain, Shamokawn, Wash. – Chapter 124 Christopher Nixon, White Heath, III. – Chapter 49 James Oster, Monroe, N.Y. – Chapter 43 Korey Pack, Virginia Beach, Va. – Chapter 54 Tim Parish, Sacramento, Calif. – Chapter 43 Jan Parker, Kearney, Neb. – Chapter 87 James Prociw, Nine Mile Falls, Wa. – Chapter 21	e approval and/or met the service requirement. Stephen Roth, Bayside, N. Y. – Chapter 15 John Sessler, Newark, Texas – Chapter 67 Daniel Smith, Perris, Calif. – Chapter 131 Marshall Tipton, Hiltons, Va. – Chapter 113 Kenneth Tondreau, Calabasas, Calif. – Chapter 36 Brian Urban Georgetown, Texas – Chapter 67 Craig Wells, Plant City, Fla. – Chapter 39 Certified Television Operator® (CTO®) Bryan Evans, York, Pa. Hugo Isensee, San Antonio, Texas Debbie Jones, Corona, Calif. – Chapter 131 Lynn Lamb, Billings, Mont. Brad Meyer, Springfield, Mo. Richard Zamora, San Antonio, Texas Certified Radio Operator® (CRO®) Richard Frishkorn, Suring, Wis. Brian Hay, Peshtigo, Wis. Hugo Isensee, San Antonio, Texas Dennis Jones, Oconto Falls, Wis.



EDUCATION UPDATE

by Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE SBE Education Committee Chairman w-pecena@tamu.edu

A look at what's coming

The SBE continually works to develop educational webinars, seminars and courses on topics that are important to our members. These programs will help you hone your skills and learn the latest technology. Here are just a few of the educational programs the SBE has available to you right now.

Webinar by SBE – IP Networking, part 4 – the Fundamentals of IPv6

The Certified Broadcast Networking Engineer (CBNE) preparation webinar series continues on February 21 with "IP Networking, part 4 - the Fundamentals of IPv6". This webinar builds upon a brief introduction to IPv6 terminology presented in the third webinar of the series held in January 2013. Just as IPv4 addressing can be challenging when managing limited IP address space, IPv6 brings new challenges when working with enormous IP address space. A new mindset is required to effectively understand and implement IPv6 in your network. New IPv6 features and capabilities also bring challenges to the broadcast network engineer.

This webinar provides an overview of IPv6 terminology and explores the fundamental challenges of implementing IPv6 in a network environment. Attendees will gain the fundamental knowledge that will allow for making informed decisions of when and how to implement IPv6 in their own environments. This webinar will dispel some of the complexity and provide practical tips, tools, and resources to assist in network engineering efforts.

The CBNE preparation webinar series provides an excellent tutorial to assist in self-study for the SBE CBNE certification as well as assisting the broadcast engineer to gain a practical understanding of IT and networking technology in the broadcast plant. The cost for members of the SBE is \$49. Non-members can register for \$75.

2013 Leadership Development Course

Plans are underway for the 2013 SBE Leadership Development Course, which has proven to be a cornerstone of the SBE education program. The course will be held over three days in early August. If your company is interested in sending a number of engineering and IT professionals, read on to find out how you can bring the course to your area.

The course is filled with exercises, including challenging workplace scenarios in an effort to help students work through difficult interpersonal situations. Randy Garrett, CSTE, CBNT, said of his experience at the 2012 course, "Very well presented – good group procedures to prove points – lot of good info."

Instructing the course is Rodney Vandeveer, a Professor of Organizational Leadership and Supervision at Purdue University. He brings more than 30 years of industrial and business experience in management positions in human resources, training and development and manufacturing.

When asked about the teaching staff of the leadership course, Bob Sulecki of WRTV6 Indianapolis said, "Rodney knows this stuff inside and out and makes it interesting as well; plus real life examples from his career help prove the points."

Vandeveer has been a professor at Purdue University since 1994, teaching classes in Human Behavior in Organizations, Leadership Philosophy and Leadership Strategies for Quality and Productivity. He also has his own leadership training business, VanTECH Training. This will be his fourth year teaching the SBE Leadership Development Course.

If your company would like to send 10 or more people to this course, the SBE could bring the course to your area. Contact Kimberly Kissel at kkissel@ sbe.org. This course has been held in Atlanta and Indianapolis in recent years. Given the interactive nature of the course, the class size is limited to 32 students. The program is held in comfortable hotel meeting facilities. The setting gets employees out of their regular workplace and provides a neutral location for participants who attend from all over the United States.

New SBE University Course – Adaptive Media Systems Engineering

The SBE Education Committee is pleased to announce the newest course within the SBE University series of technical broadcast courses; Adaptive Media Systems Engineering – Broadcast

Engineering for the Digital Age. This course, written for the SBE by member Philip Cianci, CSTE, CBNT, addresses the challenges of a contemporary technologist who works in the broadcast or media industry and offers techniques to ease the transition from broadcast engineer to media systems engineer.

Each chapter provides practical suggestions and solutions for the digital era. Subjects include an introduction to media systems engineering, the role of the media systems engineer, the importance of professional societies and standards bodies, project management techniques, the planning process, process improvement, organizational efficiency and more.

This course is not only a road map to adaptive media systems engineering but also a primer. The course is filled with references and additional readings, making them an integral part of each lesson. They are not supplemental, but mandatory reading, carefully selected to provide in-depth knowledge and understanding of important core topics.

Philip J. Cianci, CSTE, CBNT has been a member of the SBE since 2002. He is the author of High Definition Television – the Creation, Development and Implementation of HDTV Technology, published by McFarland in January 2012. This thoroughly researched work traces the 40-year history of high definition television technology from initial studies in Japan, through its development in Europe and then to the United States, where the first all-digital systems were implemented.

Cianci has authored two books published by Focal Press; HDTV and the Transition to Digital Broadcasting in 2007, and Technology and Workflows for Multiple Channel Content Distribution: Infrastructure implementation strategies for converged production, in 2009.

The cost for the SBE Adaptive Media Systems Engineering course is \$149 for SBE Members and \$209 for non-members. SBE University courses are on-line and available to you 24 hours a day, 365 days a year. You have complete flexibility to work at your own pace and at what ever time is convenient for you.

For a complete list and description of all of the educational programs currently offered by the SBE, click on the Education tab of the SBE website, www.sbe.org.





FOCUS ON SBE by John L. Poray, CAE SBE Executive Director jporay@sbe.org

The value of local participation

Much of the value of membership in the SBE is found at active chapters that provide quality programs for members in the local market. Operated by volunteers, these chapters have a wealth of knowledge and opportunity waiting for every SBE member. Many of you find it difficult to attend your chapter's meetings on a regular basis. You're

missing out on some great educational programs, opportunities for problem solving and fellowship with other people who create the "magic" of broadcasting, just like you!

Below is a list, current as of January 10, of the SBE chapters, their chairpersons and email addresses. If you haven't been to a meeting in a while, I encourage

you to contact your local chair to find out when the next meeting is and plan to attend. If there is no active chapter near you and you are a HAM radio enthusiast, visit the SBE website, Chapters tab, and click on "SBE HAMnet, Chapter of the Air" to read about two options available to you to participate in a chapter meeting via HAM radio.

SBE Chapters by State and City/Area

Alaska

89 — Terry Reynolds, CPBE alaskareynolds@gmail.com

Alabama

68—Birmingham Tim Costley tcostley@wtto.sbgnet.com

111—Huntsville Davisson Spindle dave.spindle@gmail.com

118—Montgomery Wiely Boswell, CBRE wiely@faithradio.org

Arizona

9—Phoenix Eric Schecter, CBRE eric.schecter@cbsradio.com

32—Tucson Max Roth rothm@email.arizona.edu

California

36—San Diego Douglas Alman, CBTE da1312@att.com

40—San Francisco Arthur Lebermann, CPBE artleb@earthlink.net

43—Sacramento Robert Hess, CPBE bhess@cbs.com

47—Los Angeles Michael Tosch, CSRE, AMD, CBNT mtosch@verizon.net

66—Fresno Ken Holden ken9@pipeline.com

131—Inland Empire James Alexander, CPBE, CBNT alexanderjim406@yahoo.com

Colorado 48—Denver

Tony Roccanova tony@5280broadcast.com 81—Grand Junction Philip Mowbray, CPBE

aa9og@aol.com

Connecticut

14—Connecticut Valley John Ramsey jramsey@marlinbroadcasting. com

District of Columbia

37—District of Columbia Thomas Shedlick tom.shedlick@cbsradio.com

Florida

7—Jacksonville Duane Smith dsmith@wjct.org

39—Tampa Bay Area William Brown bill@beciusa.com

42—Central Florida Steve Fluker, CBT steve.fluker@wftv.com

53—South Florida Carlos Sanchez, CPBE msanchez@cbs.com

88—West Palm Beach Steve Billing

sbilling@gmail.com

Georgia

5—Atlanta William Magliocco, CPBE, 8-VSB, CBNT wmagliocco@earthlink.net

Hong Kong

144—Hong Kong Kwok-Luen Lam kllam@sbe.org.hk 144.1—Hong Kong Student

Chapter Tsz Yeung Tsui tsui_ty@hotmail.com

Iowa

109—Des Moines Kenneth Drewes, CPBE kwdrewes@q.com

Idaho

115—Southern Idaho Thomas Kettwig, CBT tkettwig@jrn.com

145—Magic Valley Thomas Lowther, CSRTE, CBNT tlowther@cableone.net

Illinois

26—Chicago Mark Albert, CBTE msalbert@aol.com 49—Central Illinois

Gary Glaenzer glaenzer@frontier.net 96—Rockford Ben Pflederer

bpflederer@aol.com

Indiana 25—Indianapolis

25—Indianapolis Jacob Robinson jdrobinson@indy.emmis.com 30—South Bend Timothy Chapman, CBT, CBNT timc@wsbt.com 121—Tri-State (IN/IL/KY) Ben Davis bdavis@regentevansville.com

Kansas

3—Kansas Martin Heffner martin.heffner@wichita.edu

Kentucky

35—Kentucky Jerry May jmay@wtvq.com

Louisiana

44—Shreveport Rudolph Johnson, CBRE rudy707@bellsouth.net 72—New Orleans

Ernest Kain erniekain@i-55.com

Massachusetts

11—Boston Robert Yankowitz, CPBE rbyankowitz@cbs.com

Maryland

46—Baltimore Robert Lenio boblenio@yahoo.com

132—Fort Meade Paul Curtis, Jr., CBT drillcurt@yahoo.com

Michigan

91—Central Michigan Gary Blievernicht garybliev@yahoo.com 102—Grand Rapids Mark Wittkoski, CBNT wittkosm@gysu.edu

Minnesota

17—Minneapolis Joseph Conlon, CSTE, CBNT joe@townsquare.tv

Missouri

55—St. Louis Terrence Dupuis, CBRE, CBNT tdupuis@umsl.edu 59—Kansas City (MO/KS) Michael Rogers mrogers@everestkc.net 143—Mid Missouri Eric Jones ericj@kmiz.com

Mississippi

125—Mississippi Roy Davis, Jr. roy.davis@mpbonline.org

Montana

6—Montana Michael Hansen, CBRE, CBTE, 8-VSB, CBNT mikelhansen2000@yahoo.com

North Carolina

45—Charlotte Michael Smith, CSTE, CBNT msmith@wtvi.org 84—Winston-Salem Donald Moore, Jr. don@doncanhelp.com

93—Raleigh-Durham Glenn Rose, CBTE

gprose.cbte@gmail.com

Nebraska

74 – Midland (Omaha) James Leedham, CPBE, CBNT jleedham3@cox.net 87—Holdrege Jan Parker, CBT janparker@windstream.net

New Hampshire

110—Northern New England (ME/NH/VT) David Raymond, CBTE wneu.sbe.chpt 110@comcast.net

THE signal

Indianapolis site of 49th SBE National Meeting

The 2013 National Meeting of the Society of Broadcast Engineers takes place October 29-30 in Indianapolis, Ind., at the Sheraton Indianapolis at Keystone Crossing Hotel. The event is being held in conjunction with the Indiana Broadcasters Association (IBA) annual engineering conference. The local host is SBE Chapter 25 of Indianapolis.

The SBE National Meeting consists of several annual events, including the SBE Membership Meeting, the SBE National Awards Reception and Dinner and the SBE Fellows Breakfast. The national board of directors will meet during the national meeting, as will the national certification committee. Additional events and meetings will be announced this summer.

The IBA Engineering Conference includes a full day of broadcast technical presentations, organized by IBA staff with help from broadcast engineers within the state of Indiana. A trade show of equipment and service suppliers is also a popular part of the IBA event.

The Sheraton Indianapolis at Keystone Crossing is located on Indy's north side and is connected to the Fashion Mall at Keystone. The hotel has easy access off the Indy beltway and free parking. In addition to mall stores, there are many restaurants within walking distance.

More information about the SBE National Meeting will be available beginning in June. Watch for it in The Signal and SBE-news. All members and friends of the SBE are invited to attend. Members in Indiana or neighboring states are particularly encouraged to attend while the SBE National Meeting is close by. Save the dates: October 29-30 for the 2013 SBE National Meeting and IBA Engineering Conference.



Indianapolis, the home of the largest single day sporting event in the world, will host the 2013 SBE National Meeting.

New Mexico

34—Albuquerque Michael Snyder, CPBE, CBNT msnyder@newmexicopbs.org

Nevada

128—Las Vegas George Molnar, CSTE, CBNT george@molnar.com 139—Reno Timothy Stoffel, CPBE, 8-VSB, CBNT timba@lionlamb.us

New York

1—Binghamton Eric Adler adler.ej@gmail.com 15—New York City Jeffrey Smith, CSRE jsmith@fmnewsnewyork.com 22—Central New York Christopher Baycura, CEV cbaycura@sbe22.org 57—Rochester Nolan Stephany nstephany@wxxi.org 58 – Northeast NY (Albany) Charles Zarriello, CBTE 133—Buffalo

Raymond Felckowski rfelckowski@wned.org

140—Ithaca Donald Ryan, CPBE dryan@ithaca.edu

Ohio

33—Southwestern Ohio
George Hopstetter, CPBE
ghopstetter@thinktv.org
52—Central Ohio
John Owen
johno@qcom1.com
70—Northeast Ohio
Blake Thompson, CBNT
blake@uakron.edu
104—Toledo
Kevin Olden, CBTE, CBNT
kevin@provideosystems.com

122—Youngstown William King, CBT bkckking@comcast.net

Oklahoma

56—Tulsa Roger Newton, CSTE, CBNT rnewton@oeta.tv

85—Central Western (Oklahoma City) Raymond Bagby, CBRE, CBNT rbagby@sbcglobal.net

Oregon

76—Eugene Dennis Hunt dhunt@cmc.net 124—North Oregon (Portland) Everett Helm, CPBE everett@helm.net

141—Medford Keane Laguatan, CBT klaguatan@kdrv.com

Pennsylvania

2-Northeastern Pennsylvania Joseph Glynn, CPBE joeglynn@wvia.org 18-Philadelphia John Arndt, Jr., CPBE, AMD, DRB, CBNT babe@mysticbears.com 20—Pittsburgh John Luff john.luff@hdconsulting.tv 41-Central Pennsylvania Randall Miller, Jr., CBT, CBNT rfmillerjr1@comcast.net 120-Lehigh Valley Eric Reinert, CBTE ericr@wfmz.com 130-Northwest Pennsylvania

Michael Kobylka mkobylka@erie.net

Puerto Rico

142—Puerto Rico Enrique Garcia

Saipan

126—Saipan Robert Springer, CPBE rspringer@febc.org South Carolina 86—Greenville Area Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT jmassey@entercom.com 101—Columbia David Tancig dtancig@wistv.com Tennessee

103—Nashville Ted Randall tedrandall@tedrandall.com 113—Knoxville Rodger Washington

rwashington@ scrippsnetworks.co

Texas

29—Corpus Christi Stephen West swest@kristv.com

38—El Paso Iose Castro

farahjac@sbcglobal.net 67—North Texas

Thomas Schuessler, CSTE tjschuessler@verizon.net

69—South Texas Lewis Miller Imiller0355@sbcglobal.net

79—Austin Richard Grinstead, III rgrinstead@kvue.com

105—Houston Frederick Morton, CSRE radioguy@airmail.net

134 – Beaumont, TX/Lake Charles, LA Wayne Ozio

wozio@sbcglobal.net 136—Rio Grande Valley Jerry Jeske

jrjeske@riogrande.edu

Virginia

54—Hampton Roads Raymond Lenz rayl@whro.org

78—Blue Ridge Joseph Durham jpd@vt.edu

U.S. Virgin Islands

146—U.S. Virgin Islands Robert Dickinson, CBTE bobdickinson@ymail.com

Washington

16—Seattle Arthur Willetts, Jr., CTO arthur.willetts.jr@hotmail.com 21—Spokane Jerry Olson, CSRE jolson@kpbx.org 51—Tri-Cities Gerald Hill jerhil@frontier.com 117—Palouse Clearwater Donald Peters, CPBE, CBT

petersd@wsu.edu

24—Madison William Hamilton, CBT bill.hamilton@charter.net

28—Milwaukee Todd Boettcher, CPBE tboettcher@milwpc.com

80—Fox Valley Stephen Konopka, CBRE steve.konopka@ecb.org

112—Western Wisconsin Mark Burg engineering@fox25fox48.com

West Virginia

116—Mountain State Noel Richardson, CSRE nrichardson@wvradio.com

Wyoming

129—Wyoming Robert Spain, CBT rspain@wyoming.com

Several chapters currently have no active chairman and are not included on the list. Please notify Scott Jones at kjones@sbe.org, or (317) 846-9000 at the SBE national office if your chapter information is not up-to-date.

SBE nominations committee seeks board candidates

by Vinny Lopez, CEV, CBNT - SBE Nominations Committee Chairman

For 49 years, the national Society of Broadcast Engineers has been led by volunteer members who serve on the board of directors, contributing their time and resources. The national board consists of 17 members; four officers, the immediate past president, and 12 directors. The SBE Nominations Committee is currently seeking candidates for the board. The election will take place this summer.

Capable members from all corners of the field of broadcast engineering are needed to serve. To be eligible, a candidate for national office must be a Member, Senior, Life or Fellow member of the SBE, or be the designated representative of an SBE Sustaining Member (supplier company), in good standing. All candidates must also hold a current SBE engineering-level certification and must maintain that certification through all terms of office. All of the directors serve in an "at-large" capacity.

Directors serve two year terms and are expected to attend two full meetings of the board each year. These meetings are held in the spring during the NAB Show, and in the fall during the SBE National Meeting. Terms of officers are one year. All four officer positions and six of the twelve director seats will be contested this year. Officers are expected to attend the two full meetings of the board plus two meetings of the executive committee, which are held in January and June. All those who serve must be willing to cover their own travel expenses to attend the meetings. Some employers and chapters have helped cover this expense for some members of the board in the past.

Members of the board may be appointed by the president to serve as a chairman or as a member of a national committee and should be willing to serve in such a capacity if elected to the board.

Members interested in serving the SBE as a member of the national board are encouraged to contact me, Vinny Lopez, CEV, CBNT. I serve as this year's chairman of the SBE Nominations Committee. I will be happy to explain the duties and responsibilities to you in detail and answer any questions you may have. You can reach me at vlopez@wsyt.sbgnet.com or (315) 472-6800.

The Nominations Committee will submit its list of

candidates to the SBE national office by April 30, so if you're interested, be sure to contact me before that date.

On-line voting will begin July 26. Ballots will be mailed to members who opt-out of on-line voting at member renewal time. All ballots must be cast on-line, or received in the mail at the SBE national office, no later than 4:30 pm, ET, August 27. The results will be known that evening after tabulation by the official board of tellers. Those elected will be inducted into office on October 30 during the 2013 SBE National Meeting, to be held in Indianapolis, Ind. in conjunction with the Indiana Broadcasters Association Engineering Conference.

If you've thought about running for the national board but haven't gotten off the fence, why not make 2013 the year you do it. The SBE will benefit from your participation and leadership, and you'll benefit too, from the professional relationships and friendships you'll develop.

Vinny Lopez is Immediate Past National President of the SBE He is director of engineering at WSYT/WNYS TV in Syracuse, N.Y., and a member of Chapter 22.

SBE is Leading the Way because of you

The SBE Membership Drive will kick off on March 1st. This year's theme, "Leading the Way", describes the society's determination to continue to bring members the best in certification, continuing education, career development opportunities, as well as representation on regulatory and legislative issues. SBE is the only organization that is devoted to the advancement of all levels and types of broadcast engineering.

Those of you who are members know the benefits of being a part of SBE. You also know colleagues who are not familiar with SBE but could benefit from membership. Individuals may join SBE at anytime during the year but from March 1 to May 31, the SBE would like to encourage you to be extra diligent in recruiting new members.

If you recruit a new member during that time period and your name is on the sponsor's line of the membership application, then your name will be entered into the member drive drawing for prizes donated from our Sustaining Members. You will also have the opportunity to win the Grand Prize to attend the SBE National Meeting held in conjunction with the Indiana Broadcasters Association in Indianapolis, October 29-30. Also, for every new member you sponsor, you will receive \$5 off your 2014 dues (up to \$25).

Other prizes include: BRIC-Link Audio IP Codecs courtesy of Comrex (2 to be awarded); Mic Adaptor courtesy of Tieline; Heartland Video Systems logo shirt. More prizes to come so lead the way and sponsor a new member!



SUSTAINING MEMBERS Support the companies who support the SBE and the industry

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e2v • 1997 Mark Strohecker (914) 593-6831 Electronic Components, SATCom Amplifiers Econco • 1980 Debbie Storz (800) 532-6626 or (530) 662-7553 New & Rebuilt Transmitting Tubes Elenos USA • 2012 Mary Ann Seidler (305) 799-5571 Energy Efficient FM Transmitters Elettronika America Inc. • 2010 Maria Quintero (305) 592-4506 High Efficiency FM/TV Transmitter & Exciters ENCO Systems Inc. • 2003 Don Backus (800) 362-6797 Digital Audio Automation & Delivery ERI - Electronics Research • 1990 David White (812) 925-6000 Broadcast Antennas, Transmission Line, Filters/ Combiners, Towers and Services Federal Communications Compliance LLC. • 2012 Jim Purther (202) 670-4322 FCC Public File Compliance Florical Systems • 2008 Ashley Condon(352) 372-8326 Television Broadcast Automation Fujinon, Inc. • 1986 Thom Calabro (973) 633-5600 Broadcast & Communications Products Gepco International/General Cable • 1995 Joe Zajac (847) 795-9555 Audio, Video Cable Products Graham Brock, Inc. • 2012 Marilyn Matheny (912) 638-8028 Technical Consultation - Radio/TV Technical Consultation - Radio/1V Grass Valley • 2000 Andy Jackson (404) 929-5000 TV/Film Production & Broadcast Professionals Harris Corporation • 1977 Dave Hopson (TV) (513) 445-5243 Mark Goins (Radio) (513) 899-9124 Broadcast Equipment Manufacturer Heartland Video Systems, Inc. • 2011 Dennis Klas (2020) 893-4204 Dennis Klas (920) 893-4204 Systems Integrator Henry Engineering • 2011 Hank Landsberg (562) 493-3589 "We Build Solutions" High Resolution Systems • 2011 Drew Taylor (888) 742-7690 ext. 108 Systems and Show Control Systems and Show Control Image Video • 1997 Zach Wilkie (416) 750-8872 ext. 228 Under Monitor Tally Display Systems, Monitor Design and Manufacture Broadcast Equipment Inovonics Inc. • 2012 Lukas Hurwitz (831) 458-0552 Radio Broadcast Equipment International Datacasting Corporation • 2012 Rudi Polednik (613) 596-4120 ext. 2222 Media-aware Content Delivery AMPRO Antennas Inc. • 2011 Alex Perchevitch (916) 383-1177 DTV/DVBT & HD Radio-IBOC Solutions Ka You Systems • 2011 George Gimourginas (301) 585-4302 Audio, Video, IP - Satellite Kathrein Inc., Scala Division • 1985 Michael W. Bach (541) 779-6500 Antennas for Broadcasting & Communications L-3 Communications Electron Devices • 2003 Steve Bliek (570) 326-3561, ext. 229 Tubes, Power Tubes, Power Latakoo Inc. • 2011 Rod Taylor (512) 825-8709 Internet Video Distribution LBA Technology Inc. • 2002 Javier Castillo (252) 757-0279 AM/MW Antenna Equipment & Systems Lincoln Financial Media • 2007 Barry Thomas (404) 239-7211 Barry Thomas (404) 239-7211 Media Group Owner IYNX Technik • 2007 Steve Russell (661) 251-8600 Broadcast Terminal Equipment Manufacturer Markertek Video Supply • 2002 Andrew Barth (845) 246-3036 Audio, Video, A/V Broadcast Supply Maxell Corporation of America • 1991 Patricia Byrne (973) 653-2423 Data Byroadcast Video Media Data/Broadcast Video Media

Micronet Communications Inc. • 2005 Jeremy Lewis (972) 422-7200 Coordination Services / Frequency Planning

Microwave Video Systems • 2011 Warren J. Parece (781) 665-6600 Microwave Equipment Rental, Sales & Service Middle Atlantic Products • 2005 David Amoscato (973) 839-1011 Equipment, Mounting, Solutions MoreCom Inc. • 2009 Kyle Moorehead (763) 533-5535 Networking & AV Construction Moseley Associates Inc. • 1977 Dave Chancey (805) 968-9621 Digital STLs AM/FM/TV Digital STLs AM/FM/TV National Association of Broadcasters • 1981 (202) 429-5340 Industry Trade Association National Football League • 1999 Ralph Beaver (813) 282-8612 Game Day Coordination Operations Nautel Inc. • 2002 Jeff Welton (877) 662-8835 Radio Broadcast Transmitter Manufacturer Nemal Electronics Int'l Inc. • 2011 Benjamin L. Nemser (305) 899-0900 Cabels, Connectors, Assemblies and Fiber Optic Neutrik USA, Inc. • 2012 Kathy Hall (704) 972-3050 Ruggedized Optical Fiber Systems NuComm/RF Central • 2009 Don Hoeler (908) 852-3700 ext. 3110 Digital and Analog Video Microwave Systems Digital and Analog Video Microwave Systems Orban • 2011 David Rusch (480) 403-8300 Audio Processing AMFMTV Panasonic Solutions Company • 1985 Joe Facchini (201) 392-6183 Professional Broadcast Equipment Pasternack Enterprises • 2001 Christine Hammond (949) 261-1920 Coax & Fiber Products Potomac Instruments Inc. • 2012 Guy Berry (301) 696-5550 RF Measurement Equipment Manufacturer RF Measurement Equipment Manufacturer ProAudio.com- A Crouse-Kimzey Co. • 2008 Mark Bradford (800) 433-2105 ext. 560 Proaudio Broadcast Equipment Distributor Propagation Systems Inc. - PSI • 2010 Doug Ross (814) 472-5540 Quality Broadcast Antenna Systems Pulsecom • 2003 Winnie Evans (703) 471-2926 Mn EM aud HD CST, Compre & Optical AM, FM and HD STLs, Copper & Optical Qualis Audio Inc. • 2011 Douglas Ordon (310) 621-4448 Audio and Loudness Monitoring Quintech Electronics and Communications Inc. • 2002 Paul Campagna (724) 349-1412 State-of-the-art RF Hardware Solutions QVC • 2011 Kevin Wainwright (484) 701-3431 Multimedia Retailer RCS • 2003 Diana Stokey (308) 284-3007 Audio and Video Content Management RDL • 2004 Chuck Smith (928) 778-9678, ext. 142 Audio, Video, Control & Test Equipment Manufacturer RF Specialties Group • 2008 www.rfspecialties.com Everything from the Microphone to the Antenna Richland Towers • 2001 Ryan Willaman (813)579-4239 Tower Owner/Management Rohde & Schwarz • 2003 Eddy Vanderkerken (469) 713-5322 Broadcast Transmitters, Test & Measurement ROSCOR Corporation • 1998 Tom Voigts (847) 299-8080 DTV System Integrator Ross Video Ltd. • 2000 Kyle Luther (613) 652-4886 Manufacturer, Television Broadcast Equipment Sage Alerting Systems Inc. • 2010 Gerald LeBow (914) 872-4069 ext. 210 Emergency Alert Systems Products Salzbrenner Stagetec Media Group • 2009 (888) 782-4391 Professional Audio Solutions

(888) 782-4391 Professional Audio Solutions SCMS Inc. • 2000 Bob Cauthen (800) 438-6040 Broadcast Equipment- New/Used Screen Service America • 2010 Graziano Casale (212) 695-8341 Broadcast Transmitter & ATSC Mobile

Seacomm Erectors, Inc. • 1997 John Breckenridge (360) 793-6564 Tower/Antenna Erections Shively Labs • 1996 Smvety Labs • 1996 Dale Ladner 888-SHIVELY FM Antennas & Combiners Shure Incorporated • 2012 Bill Ostry (847) 600-6282 Microphones, Wireless Systems, Headsets Sierra Automated Systems and Engineering Inc. • 2011 Cam Eicher (818) 840-6749 Routers Wireless Correlos Laterative Routers, Mixers, Consoles, Intercoms Sigmet • 2008 Ed Portko (610) 783-6666 Broadcast Equipment Support Sales Signiant • 2012 Doug Prouty (781) 221-4000 Signiant Content Delivery Software Snell Inc. • 1995 John Shike (818) 556-2616 John Shike (818) 556-2616 Video Equipment Manufacturer Solid State Logic • 2011 Steve Zaretsky (212) 315-1111 ext.15 Digital Audio Consoles/Router Staco Energy Products Co. • 2010 Paul Heiligenberg (937) 253-1191 ext 128 Manufacturer Voltage Regulators, UPS Superior Electric • 1995 Michael J. Miga (860) 507-2025 Prower Protection Protection Environment Power Protection Equipment Sutro Tower Inc. • 1989 Eric Dausman (415) 681-8850 Broadcast Tower Leasing TC Electronic • 2008 Laura Davidson (818) 665-4902 DTV Audio Level Processing Technostrobe • 2009 Francis Lacombe (877) 578-7623 FAA Lights - High Intensity Tektronix Inc. • 1977 James Lang (800) 833-9200 Video Test Equipment Manufacturer Telos Systems/Omnia/Axia • 2003 Denny Sanders (216) 241-7225 Telos Systems - Talk-Show Systems Teradek • 2011 Jon Landman (949) 743-5783 Camera-top ENG Solutions Terrestrial RF Licensing Company • 2003 Steven Slocum (888) 373-4832 FCC Broadcast Auxiliary Licensing Services TFT • 2011 TFT • 2011 Darryl E. Parker (408) 943-9323 STL, EAS/CAP, RF Monitors The Durst Organization – 4 Times Square • 2004 John M. Lyons, CPBE (212) 997-5508 TV/FM/Microwave Tower Site The Switch Company • 2011 Peter Hanz (323) 645-8011 Ether Temperature Develop Fiber Transmission Provider Tieline The Codec Company • 2003 John Lackness (317) 845-8000 POTS, ISDN, Codecs & A/V Products Trilithic • 2011 Tom Cridlin (317) 895-3600 Emergency Alert Equipment (EAS) TV Magic • 2008 Bob Anderson (858) 650-3155 Broadcast Systems Integrator Unimar Inc. • 2001 Thad Fink (315) 699-4400 ext. 307 or (813) 943-4322 Tower Obstruction Lighting Designer, Manufacturer, Distributor Vislink Broadcast • 1991 Vislink Broadcast • 1991 Mark Tommey (978) 671-5700 Video Microwave Systems Voice of America • 2011 Richard P. Barnes, PhD, CBRE (202) 203-4848 Ward-Beck Systems Ltd. • 2004 Michael Jordan (416) 335-5999 Metering, Monitoring, Distribution, Conversion Wheatstone • 2010 Jay Tyler (252) 638-7000 IP Consoles, Routers & Processors WideOrbit • 2012 Brad Young (214) 923-6337 Brad Young (214) 923-6337 Broadcast Management Software, Automation and Master Control Wireless Infrastructure Services • 2006 Travis Donahue (951) 371-4900 Broadcast Microwave, Tower and ENG Installation, Integration Maintenance Services



Jason Ornellas, CRO

Station Engineer, Greater Media, Morristown, N.J. Joined the SBE in September 2008 and is a member of Chapter 15, New York City. **Getting Started:** I was studying communications at the University of Indianapolis and joined the radio station the college operates. My first real radio job was with WICR-FM, and after a year, I became the Broadcast Technician. I was thrilled to build a complete digital IP studio and maintain four other IP studios.

Job satisfaction: Every day brings something new and there is always a challenge. I enjoy not knowing what I might end up fixing, breaking or building every day. Being an engineer entitles a lot of responsibility, and sometimes creativity, which makes the job fun. I have a lot of passion for radio and look forward to my future in broadcasting.

What do you enjoy most about your involvement with the SBE?: I enjoy the educational opportunities and need to

challenge myself to earn more certifications. I just became treasurer for Chapter 15 and I'm looking towards helping build the continued success of our chapter.

When I'm not working: I enjoy coaching baseball. I recently got engaged and my fiancé and I have both been having a blast planning the big day. I'm a huge San Francisco Giants and Oakland Raiders fan since I was born and raised in San Francisco, Calif. I also train cross-fit style and I'm planning my next adventure/military style run in the spring.

Best known for: Playing four years of college baseball at the University of Indianapolis.

Pictured here: Taking a break from our live broadcast in Riviera Maya, Cancun, Mexico with WJRZ 100.1 FM in Manahawkin, N.J. We went zip lining through the jungle. Not a bad lunch break.

CHAPTER SPOTLIGHT

By Ed Sharpe, Chief Engineer, Glendale Daily Planet and Archivist for SMECC Communications Museum Chapter 9, Phoenix, Arizona

Informative chapter meetings and great fellowship are the hallmarks of SBE Chapter 9, in Phoenix, Ariz. Our 66 members, 35% of which hold SBE certification, meet monthly. A variety of meetings topics and locations keep things interesting. Eric Schecter, CBRE, is our current chapter chairman.

A recent meeting included a field trip to the new facilities of Bonneville Media in Phoenix, which consists of KTAR Sports 620 AM, KTAR 92.3 Talk Radio, 98.7 The Peak and KMVP-AM. Harris Corporation and SCMS sponsored the educational event and studio tour. The luncheon program was "A New Approach to Solid-State High-Power FM Amplifiers," presented by Tim Anderson of Harris (Tim is also a national board member of the SBE. ed.). After a great lunch of ribs and chicken, attendees were treated to a tour of the new studio facilities, led by Chief Engineer Gary Smith.

Another interesting meeting took us to a challenging new AM transmission site that puts the new FCC rules to the test. Gary Smith also hosted this trip the site built atop a landfill! KMVP 860 AM / Phoenix was Bonneville's first AM site to be built from the ground up using MOM technology. It is also unique in that it has been constructed on a decommissioned landfill, which necessitates methane gas mitigation and other environmental requirements. It is not permitted to penetrate the landfill's earth encap, so all anchors and base pedestals had to be designed and installed above grade.

The members of Chapter 9 are committed to developing the next generation of broadcast engineers. One way we do this is through financial support of the James F. Golder Memorial Scholarship Fund. The scholarship is dedicated to the memory of KPNX-TV technician, Jim Golder, who died tragically in a fall from a radio tower he was servicing on February 12, 1983. Jim, who was just 22 at the time, was a third generation broadcast engineer and was active in the activities and management of Chapter 9.

Jim was a junior at the Arizona State University, School of Engineering. The scholarship fund is incorporated in the State of Arizona for the purpose of providing scholarships to deserving young men and women with the aim of fostering broadcast engineering as a career.

Chapter 9 is not all meetings and technology! We like to have meetings just for fun too! Every summer we have a picnic and swim party with some of the best cooked goodies you can imagine! Another yearly treat is pizza night at "Organ Stop Pizza" that brings together great friends, great pizza and the amazing music of a 1927 Wurlitzer theatre organ, the largest in the world. We finish out each year with a holiday party full of festivities, food and a gift exchange.

Good educational topics and friendship help attract members to meetings of Chapter 9. Through their attendance, members benefit by keeping current with the industry in the Phoenix area and the state of Arizona. Our chapter encourages interested high school students to join as Youth members of the SBE.

What makes Chapter 9 successful besides good meeting topics and fellowship? Good communication among members, common engineering broadcast sites, and solving problems within the broadcast community.



Members of SBE Chapter 9 attend a field trip to Bonneville's KMVP 860 AM / Phoenix transmitter site located atop a landfill. Photo by Bette Sharpe CouryGraph Productions



SBE President Ralph Hogan, CPBE, DRB, CBNE receives Chapter 9 Engineer of the Year award from chapter chairman, Eric Schecter, CBRE.

MARK YOUR GALENDAR

Webinar by SBE \cdot IP Networking, part 4 – the Fundamentals of IPv6 February 21, 2 – 3:30 p.m. ET Instructor: Wavne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE Cost: SBE Members: \$49; Non- Members: \$75

Sacramento Ennes Workshop February 23, 9 a.m – 5 p.m. ET Hosted by SBE Chapter 43 and KVIE TV - Sacramento, Calif. Cost: SBE Members · \$30; Non- Members · \$40

Webinar by SBE · FCC Enforcement Actions February 28, 2 – 3:30 p.m. ET Instructor: Dennis Baldridge, CPBE, 8-VSB, AMD, DRB, CBNT, SBE; and James Roop, FCC Chicago District Director Enforcement Bureau

Cost: SBE Members · \$49; Non- Members · \$75

South Florida Ennes Workshop March 8, 9 a.m. – 5 p.m. ET

Hosted by SBE Chapter 53 and Clear Channel Cost: SBE Members · \$35; Non- Members · \$55

Certification Exam Deadline March 22, 2013 Exams held at 2013 NAB Show

For more information or to register for the education programs brought to you by the SBE, visit our website at www.sbe.org under Education.

MEMBERS ON THE MOVE

Karl Paulsen, CPBE has a new title: Chief Technology Officer at Diversified Systems.

Jeff Smith, CSRE is now engineering supervisor at WFAN AM/FM in New York City.



The trust offers scholarship and educational programming and grants that benefit broadcast engineering and the broadcast engineer. Submit tax-deductible donations, payable to the Ennes Educational Foundation Trust, to the Society of E D U C A T I O N A L FOUNDATION TRUST Broadcast Engineers, 9102 N. Meridian St., Suite. 150, Indianapolis, IN 46260.

THANKS TO THE FOLLOWING SUPPORTERS FOR THEIR CONTRIBUTIONS:

Harold Ennes Scholarship Chapter 35, Kentucky Chapter 111, Huntsville, Ala.

John H. Battison SBE Founder's Scholarship Chapter 122, Youngstown, Ohio



Answer question on page 3

b. IEEE 802.1D

WELCOME TO THE SBE

NEW MEMBERS

Kevin Bowen - Jenks, Okla, Ian Milne - Pleasanton, Calif. Sean Germany - Stone Mountain, Ga. **Rick King - Valrico, Fla.** John E. LaFond - St. Cloud, Minn. David Brender - New York, N.Y. **Douglas Demore - Cibolo, Texas** Jordan D. Evans - Shreveport, La. Matthew R. Grimme - Englewood, Colo. Peter Grosskopf - Hamburg, N.Y. Mario A. Magana - Seattle, Wash. Christopher A. Spinney - Presque Isle, Jason E. Lipton - San Bruno, Calif. Maine Floyd D. Wilhite - Ormond Beach, Fla. Michael Celenza - Coram, N.Y. David A. Kuipers - Austin, Texas Larry Ewing - Amarillo, Texas

Damion M. Giunta - Thousand Oaks, Calif. Kyle A. Hood - Atlanta, Ga. Aftan Merrida - Alabaster, Ala. Donny A. Newman - Tucson, Ariz. John D. Wray - Shreveport, La. Jason A. Waterhouse - Los Angeles, Calif.

Mike Webber - Old Bridge, N.J. Troy M. Balash - West Chester, Ohio William G. Floyd - Philadelphia, Pa. Scott A. Monson - Chamblee, Ga. Gregory P. Resh - McKeesport, Pa. Michael J. Tindall - Lansing, Mich. William H. Traue - Idaho Falls, Idaho Joshua B. Zimmerman - Oak Park, III. Laramie Guest - Mount Pleasant, S.C. David Schmiedel - Indianapolis, Ind. David K. Tripp - Chapel Hill, N.C. Thor Waage - Woodburn, Ore. Jeffrey L. Yeagley - Las Vegas, Nev. Fred Bennett - Las Vegas, Nev. David R. Loud - LaVerne, Calif. Paul Atwell - St. Petersburg, Fla. Desiree Gall - Aspen, Colo, Ken C. Leisten - Santa Clara, Calif. Philip F. Mulivor - Cleveland Heights. Ohio

REINSTATED MEMBERS

Criss Onan - Fairport, N.Y. Jerry A. Miel - Tucson, Ariz. Todd A. Dixon - Jemison, Ala. Jose Cruz - Dallas, Texas Glenn D. Jordan - Buford, Ga. Alex G. Voss - Farmers Branch, Texas Joe Hartmann, Jr. - Aydlett, N.C. Carlos E. Puma - Los Angeles, Calif.

Jaime R. Martinez - El Paso, Texas John D. Freberg - Homewood, III. Marshall D. Tipton - Hilton, Va. Michael L. Guidotti - Fort Worth, Texas **Christian L. Vang - Denton, Texas** Donald L. Renollet - Indianapolis, Ind. Maria L. Salcido - Sumter, S.C.

NEW STUDENT MEMBERS

Eli L. Sanders - Fayetteville, Ga. Greg S. Bolton - Trenton, Ontario, Canada Camille Board - Redwood City, Calif. Adria McGhee - Federal Way, Wash. Miles J. Gombosi - Mechanicsville, Pa.

NEW ASSOCIATE MEMBERS

Mark Mugarura - Los Angeles, Calif. Howard Barouxis - Miami, Fla.

not all bricks are the same





finally, bricks done right..

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