

Engineerings

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November 1999 Volume 75 Number 3

Welcome to www.provengsociety.com

The Providence Engineering Society's new website promises to be a true information resource to the Rhode Island engineering community

by Roy L. Bouvier, Editor/Publisher of *Engineerings*;
President, Providence Engineering Society

The Providence Engineering Society has announced the launch of its new website at www.provengsociety.com. Consistent with the Society's overall mission, the site has been designed to become a dynamic resource to the engineering community of Rhode Island.

The home page of the new site provides access to information on the Providence Engineering Society, its long and impressive history, and a list of contacts. Engineers wishing to join the Society may even submit an application online through the membership page.

Each of the Affiliate Societies have been provided space on the PES site to offer whatever information they wish. Contributions to the affiliate area of the PES site should be forwarded to Roy Bouvier at RoyB94@home.com. All material must be in electronic format and in publishable condition. Material submitted in hardcopy form will not be accepted. The affiliate area of the site can accommodate information such as dinner meeting notices, membership information, articles of interest, special events and much more.

An Education page has been included on the PES site that links engineers to the course offerings at the area's local colleges and universities. Links are provided for URI, Brown



The new Providence Engineering Society Home Page at www.provengsociety.com.

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Mark Your Calendar
&
Make Your Reservations!

The Providence Engineering Society Annual Banquet will be held
Thursday, March 2, 2000

Contact Dot Sadowski at
(401) 434-2332 or by email at
pes@provengsociety.com
for more details

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Calendar of Events

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DATE: TBA DAY: TBA TIME: TBA LOCATION: TBA SPEAKER: TBA TOPIC: TBA	DATE: NOV18 DAY: THURSDAY TIME: 5:30PM REG, 6:00PM CKTLS, 7:00 DINNER/PGM LOCATION: CASAROSS RESTAURANT, 90 POINT JUDITH ROAD, NARRAGANSETT SPEAKER: BOBBEAGLE, VP URI/ADVANCEMENT, LARRY BACHER, PROJ EXEC, GILBANE BUILDING TOPIC: URI CONVOCATION CENTER	DATE: TBA DAY: TBA TIME: TBA LOCATION: TBA SPEAKER: TBA TOPIC: TBA	DATE: TBA DAY: TBA TIME: TBA LOCATION: TBA SPEAKER: TBA TOPIC: TBA
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Notice Regarding Contributions: Contributions and Gifts to the Providence Engineering Society may not be tax deductible. Please consult your tax advisor before taking any action that would affect your tax situation.

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Providence Engineering Society Office Hours are 9:00 AM to 4:00 PM, Monday through Thursday

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Affiliate members each receive a monthly copy of "Engineering" and are urged to submit events and/or articles for publication prior to the 10th of each month.

**The Providence Engineering Society
Thanks The Following Corporate
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Companies wishing to become a Corporate Member of the Providence Engineering Society should contact Dorothy Sadowski, P.E.S. Offices, at (401) 434-2332.

Providence Engineering Society Announces College Scholarship Eligibility for The Year 2000

The Executive Board of the Providence Engineering Society (P.E.S.) is once again pleased to announce the availability of at least one college scholarship award in the amount of \$1,000 for the 2000-2001 academic school year. This will be first PES College Scholarship to be awarded to an engineering student in the 21st Century.

Eligible scholarship award candidates must be (1) a member or a descendant of a living member of the P.E.S., or a member or a descendant of a living member of an affiliate organization of the P.E.S.; and (2) a student enrolled in an accredited engineering or approved technical and/or engineering-related program leading to a Bachelor of Science degree. All student applicants must be full-time students and must have completed at least two full academic semesters at the time of application.

Members of the Providence Engineering Society and members of our affiliate organizations are strongly encouraged to seek out relatives who may be prospective candidates. If you know of any individual who may be qualified for the scholarship award for the 1999-2000 academic year, please contact the P.E.S. office (401-434-2332) to request a scholarship application form. The application must be accompanied by a complete academic transcript through Spring 1999. The Fall 1999 grades will be forwarded to the P.E.S. office for record purposes as soon as they become available to the student applicant. The filing deadline is December 31, 1999.

If you have any questions regarding the eligibility of a prospective student for this scholarship award, please contact Robert Anderson at (508) 543-1700 during the daytime hours.

Larry's Corner

by L. Robert Smith F.ASCE
Past President, Providence Engineering Society

"Good Thing I Am In The Business - Continued"



Long term readers of **Larry's Corner**, and I am surprised at how many there are, will recall my misadventures of having work done at my house. Invariably, it has been because I hired people who I knew through the business. Invariably, it was a nightmare. I had a client who was a carpenter. He owed me money. I have found that you can never come out ahead having someone work off a bill. They act as if they are working for nothing. I always tell them to pay me what they owe me and I will hire someone when I get their money. That works up to a point. Another reason not to barter is that I am scrupulous about reporting these things for tax purposes. The barter is not always as scrupulous. My house is on a corner lot. The living room had a double hung window on the side facing the side street. I wanted to replace it with a bay window. I picked one by a major national manufacturer. It was supported with a steel cable system and I opted for the copper roof option. The window that was to be removed was going to be placed in the back wall of my garage. The new window and the other material would be charged to me at the lumber yard. The carpenter and I would exchange cheques when the work was done. Easy as falling off a log. What could go wrong?

First the glass in the window being removed was broken. Ah well, just a piece of glass. Only the glass sat in a pocket dadoed into the frame. The window had to be routed on one side to allow for a new piece of glass to go into the frame. Now it required putty. Unbeknownst to me the carpenter had not ordered the bay window. While his helper was fixing the broken window, he went to the lumber yard expecting that they would have it in stock. What a shock. There was a four to six week lead time. What was he to do? He had my house with a large hole in the side and it would have to stay that way for at least a month. Lumber yard to the rescue. They did have a bay window in stock. It was a name brand. It wasn't cable supported and it didn't have thermopane double hung windows on the angle bays. It was manufactured locally in someone's garage. Forget the copper roof. I came home from work that day and went over to look at my new beauty. I got sick. I went into the house and called the carpenter. He explained that the one I wanted you paid just for the name. This was \$300 cheaper and was just as good. I asked how much storm windows would cost since the double hungs were single glazed. I also told him the window he put in was garbage and I wasn't too happy about it. Like a dummy I let him finish the installation and paid him. I did get my cheque from him.

Over the years, the center picture window portion lost its seal and had to be replaced. The glass man told me that it had lost its seal because the frame was rotting out where the window had been leaking. The stool, which had been manufactured with finger jointed lumber, was separating at the joints. It also seemed to be tipping outwards. With special epoxy based compounds, I was able to replace the rotted sections of the window. I was able to jack up the front of it, and replace the brackets that were underneath with steel angle iron. Boy was I saving money. The glass man came back and replaced the picture window glass. I re-painted and re-stained everything. The following spring I noticed that a different portion of the window was rotting. I called a friend, who was a contractor and told him I wanted to order the original name brand window with a copper roof and put an end to my misery. No problem. He came over and we measured up the piece of junk we were going to replace. Guess what. It was a mongrel size. What a shock. We would either have to re-frame the whole thing or use a slightly

Turn to "GOOD THING" on Page 4

"GOOD THING" continued from page 3

smaller window and pad it out on the inside. That's what we did. Finishing off the inside was exciting. The window has two fluted columns on either side, before the casing was applied. But it was done. Cost me at least twice what it would have cost had the original carpenter used the right window ten years ago. Then I had to have the side of the house re-painted. I had to have the alarm company re-do the alarm and the window tinting company apply tint to the new window. All these entities have minimum charges and everyone was below the minimum for a service call. However I still felt good about it. It was done and it was now done right. I felt good about it right up to the time I ran into the original carpenter. I told him that I had had to rip out that original piece of junk he had put in and replace it. I told him what the whole thing had cost me. His response was, "Hey, you got ten years out of the window, what's your complaint?" I started to explain that if he had put in the original window I wanted that I would be dead and gone and the window would still be there. He wasn't that sure. As a matter of fact, he thought I would have been better off replacing the window he had put in with another cheapie. That way if it went bad, I wouldn't have spent all that money.

Good thing I am in the business! Better yet, good thing he is in the business!!!!

Are You a Member of the Providence Engineering Society?

by Roy L. Bouvier, President
Providence Engineering Society

Despite what you may think, the answer is probably not.

In conversations with various affiliate society members over the last several years, it is clear that many are under the impression that due to the Society's close affiliation with the eight affiliate societies, they are indeed members of the Providence Engineering Society. Unfortunately, not many are members and we would welcome you to join our ranks.

The Providence Engineering Society has a long and storied tradition and is the oldest engineering society in the United States.

Originally formed as the Providence Association of Mechanics and Manufacturers in 1789, today's Providence Engineering Society is the outgrowth of a small group of engineers with a common interest.

Meeting in the Old State House, this technical society came to hold considerable influence in the City of Providence. The membership counted among its ranks a number of distinguished men including Joseph R. Brown whose membership certificate was dated 1833. An impressive library was amassed during the early years and in 1877-1878 became the nucleus of the Providence Public Library. Over one-half of the books of the Public Library upon its opening were contributed by the association. A contribution of \$10,000 from the estate of Joseph Brown became the financial cornerstone on what is today an impressive resource for the entire state.

The mission of today's Providence Engineering Society is to become a multi-disciplinary engineering organization dedicated to education and the exchange of information among the various engineering organizations servicing the Rhode Island area.

The Providence Engineering Society offers opportunities to bring professionals together for recognition, fellowship, and the exchange of information. These opportunities for the social and educational enrichment of the membership will be provided through printed page, electronic media, and live presentations as evidenced by the PES Website, Engineering Newsletters, and meetings such as the recent Affiliate Dinner Meeting..

We invite all Rhode Island engineers to join us. For more information and a membership application, visit the PES website at www.provengsociety.com to apply online or call (401) 434-2332 to be sent an application.

"WEBSITE"**continued from page 1**

University, Roger Williams University, and New England Tech.

Information on the Providence Engineering Society Scholarship is provided via a Scholarship link on the home page.

An online version of this newsletter, Engineering, is provided in PDF format on the site for access using the industry standard Adobe Acrobat Reader. The Acrobat Reader is distributed free on the Adobe site. A link to the Adobe site has been provided.

An online version of the Event Calendar has been provided and utilizes the When.com website. By selecting the LOGIN button on the PES site, the calendar will be displayed. Each week or month can be displayed.

In line with the event calendar, a calendar has been set up that shows all of the trade shows, meetings, and seminars of interest to our member and those of the affiliate societies. Additional information on every event is provided simply by clicking on the link associated with that event.

Perhaps one of the most impressive and useful features of the PES website is the LINKS area. This page already offers a very impressive collection of links to engineering related website including all of the professional organizations, engineering licensure sites, regulatory sites, and government sites. A link is provided to 100 of the best business related websites as well.

The new Providence Engineering Society website will be dynamic, changing and evolving to meet the needs of Rhode Island engineers. Please visit. Any suggestions or material for the site should be sent to Roy L. Bouvier at RoyB94@home.com.

Editor's Note:

Letters, story ideas, and material are welcomed and encouraged. If you have an opinion, press release, or story that you feel is worth sharing, forward it to me via fax at (401) 823-4850 or mail to: Techwrite Services, 3 Congdon St., Coventry, RI 02816, or by Email via techwrite-svcs@home.com.

The Engineer's Monthly Money Memo

By: Paul S. Seibert, Jr., P.E., CFP
President, Asset Management Associates, LLC

Among the first and most important parameters established in every Engineering design project is the life-cycle required of the facility needed by the client. Or, put another way, how long must the facility last? The answer, of course, will have significant impacts on the way the facilities are designed.

Today, more of us than ever are considering retirement at an early age, for a wide variety of reasons. And, in a similar fashion, the question of "How Long Must The Money Last" becomes a critical input into retirement income planning, and will have significant impacts on the way the plan is designed.

Not long ago this question was much easier to answer when planning retirement income. That's because so many people worked until failing health forced retirement, usually followed shortly by death. It's also because longevity was not as variable among individuals as it is today. And finally, for many people, there were few assets to convert into retirement income beyond social security and pensions.

Today, the picture is very different, with people retiring earlier in generally good health, and with many years of quality life remaining. Life-expectancy increases in recent years have been astounding, and continue today at a significant rate. At the same time, the variability of life-expectancy among individuals has increased greatly, reflecting a number of biological, social, and environmental factors. Equally important, many retirees today end their working careers with accumulated assets far in excess of what our forebears could have even imagined.

This longer retirement time-horizon, together with sufficient resources to support the life style made available, makes the question posed a crucial input into retirement income planning. Longevity estimates alone provide only a starting point, as it must be recognized that 50% of those in any group will out-live the statistical life-expectancy indicated. Few people will accept a 50% chance of out-living their retirement funds.

Choosing an unrealistically long time-horizon having too high a chance of success is equally unacceptable, as the resulting income constraints could dictate a lower than necessary retirement life style. What then does represent an acceptable margin of error in answering this question? Many feel that a retirement income plan should be based upon no greater than a 10%-20% chance of the retiree outliving the assets available.

To achieve this, life expectancy statistics may be adjusted to reflect the probability of success desired, and then further modified to reflect the more subjective factors which today very much influence longevity. These factors include heredity, gender, race & socio-economic inputs. Naturally, any plan so structured should be reviewed on a regular basis, and subject to as many "mid-course" adjustments as are necessary.

How long must the money last? Well, like many financial planning issues, a precise answer will depend upon your individual circumstances, and you may find some professional help useful to have total confidence in the result. But don't be surprised if a time-horizon extending to age 90 or even beyond is ultimately suggested. Most people will not only find that answer a pleasing prospect, but one which should serve them well in their planning efforts.

RISPE Call for Engineer of the Year Nominations

The Rhode Island Society of Professional Engineers (RISPE) is accepting nominations for their Engineer of the Year.

Nominations must be addressed to RISPE and received at the office of the Providence Engineering Society, P.O. Box 16610, 9 Newman Avenue, East Providence, RI 02916, no later than December 31, 1999.

All engineers registered in the State of Rhode Island are eligible, except for current RISPE Board members.

For more information, please contact Mark Felag, P.E. at (401) 222-2524 ext 4130.

PES Calls For Freeman and Humanitarian of the Year Award Nominations

The Providence Engineering Society is requesting nominations for its Freeman Award and Humanitarian of the Year Award to be presented at the PES Annual Banquet, Thursday, March 2, 2000.

The Freeman Award is given in honor of John Ripley Freeman (1855-1932) and recognizes lifetime achievement and contributions to the field of engineering.

The Humanitarian of the Year Award is presented by the Society in recognition of long term service and contributions to charitable and/or civic causes.

Anyone wishing to nominate someone for either of the above awards should do so in writing to the Providence Engineering Society, Nine Newman Avenue, P.O. Box 16610, Rumbord, RI 02916.

You may also email your nominations and/or questions to pes@provengsociety.com.

All nominations must be accompanied by a letter of support indicating the reasons why the nominee should be considered.

State To Inspect Concrete Bridges

Collapse prompts charges of neglect

*By Michael Crowley, Globe Correspondent,
reprinted from the Boston Globe, October 30, 1999*

Alarmed by the sudden, unexplained collapse of a Lincoln bridge, state officials will begin emergency inspections of 120 similar bridges around the state and may close down others if they are found to be in dangerous condition.

State Highway Commissioner Matthew J. Amorello said engineers will start an intensive examination of concrete arch bridges around the state today.

Over the next three days, they will examine about 20 bridges with designs most similar to the collapsed Lee's Bridge along Route 117. The rest will be examined over the next few weeks. "If necessary, we will shut them down," Amorello said. The urgent inspections stem from findings that Lee's Bridge, which was torn down yesterday after a 15-by-20 foot chunk fell from it Thursday, had not been soundly designed and built. No one was injured when the bridge section crumbled. Amorello said he does not believe there is any imminent threat to the public, noting that "this incident was very unique." He said state engineers had discovered flaws in the bridge after tearing it down that were not detectable by standard inspection procedures. For example, the 87-year-old bridge was not waterproofed beneath the pavement and not properly reinforced.

Amorello said engineers will begin removing cores, or small cross-sections, of the other bridges to look for internal defects. Concrete arch bridges stretch across rivers, railroad tracks, and roadways from Boston to Williamstown. The structures include the Western Avenue bridge over the Charles River and the Border Street bridge over Cohasset's harbor. Meanwhile, critics warned that the aging bridge's collapse was an ominous symbol of a long-neglected and eroding infrastructure elsewhere in Massachusetts. "It is a snapshot or an illustration of things that may be forthcoming if we don't pay attention in a more serious way to our state's roads and bridges," said House Transportation Committee chairman Joseph C. Sullivan (D-Braintree). In recent years, the Cellucci administration has been accused of diverting funds for local road and bridge improvements to finance Boston's \$10.8 billion Big Dig project.

The administration contends that recent cutbacks in federal highway aid forced the state to spend more on the massive highway project. Administration officials acknowledge the need for bridge repairs outstrips the money available to fund them - especially after years of reduced funding for road projects during the last recession. "We've been behind the 8-ball on this for some time," said Tom Broderick, chief engineer of the Massachusetts Highway Department. We've slipped into a big hole and it's going to take a lot of time and money to get out of that hole." There are 595 "structurally deficient" bridges in Massachusetts, Amorello said, down from about 800 in 1991. Massachusetts has been spending an average of \$120 million per year on bridge inspections and maintenance, he added, and the state hopes to have repaired all of the deficient bridges by 2004. Still, some said the state should do more to upgrade crumbling roads and bridges. Sullivan criticized Cellucci for seeking more than a billion dollars in tax cuts at a time when hundreds of bridges are due for repair. "The general public is yearning for needed attention to infrastructure, as opposed to an additional 50 dollars in their pockets so they can buy pizzas on the weekends," Sullivan said. Patricia Mikes of the Massachusetts Municipal Association noted that Cellucci recently vetoed \$50 million from a \$150 million transportation bond bill for local construction projects, money she said is needed by the state's cities and towns. "Local communities and the state have been very fortunate," Mikes said. "This is an example of what happens when we're not making investments in our infrastructure."

Despite a recent inspection that found flaws in Lee's Bridge and led to a lower safety

rating, Highway Department officials said engineers had no way of knowing the structure was in danger of imminent collapse. The bridge was last inspected in April. The state had posted weight limits on the bridge of up to 29 tons for five-axle vehicles. But officials noted that such limits are hard to enforce, and they suspect that the collapse may have been caused in part by heavy traffic.

Neighbors said a house, loaded onto a flatbed truck, had been hauled over the bridge recently. Broderick noted that it simply wasn't practical for the state to close down bridges at any sign of wear-and-tear. "Just because someone notes a defect ... doesn't mean it can't safely carry traffic," Broderick said. "You prioritize based on traffic and public benefit, and where you focus your dollars." After tearing down Lee's Bridge, state engineers found several ways in which it did not comply with the standard design of concrete arch bridges and want to see if others have similar problems.

The highway department plans to replace the 62-foot bridge with a steel span, which should be completed by mid-November. Meanwhile, local officials praised the Highway Department's quick response to the bridge collapse. But some decried the way the historic, graceful bridge - partially donated by a descendent of John Quincy Adams - was roughly torn down.

State Senator Susan Fargo (D-Lincoln) noted that the Highway Department broke several granite stones lining the bridge. Fargo said the stones were worth up to \$1,200 each. Residents had long admired the beauty of the span. "This bridge was put together in a craftsmanlike way and it's just gone," Fargo said.

This story ran on page A01 of the Boston Globe on 10/30/99. (c) Copyright 1999 Globe Newspaper Company.

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