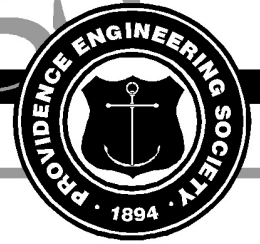


Engineerings

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May 2002 Volume 77 Number 6

Capaldi To Speak At PES Annual Meeting

Chief Engineer for the Rhode Island Department of Transportation will address Freight Rail Improvement Project Experiences

The Providence Engineering Society has announced that James R. Capaldi, P.E., the Chief Engineer of the Rhode Island Department of Transportation will be guest speaker at the 2002 PES Annual Meeting to be held on Thursday, June 20, 2002 at the Kirkbrae Country Club. Mr. Capaldi's topic will be "Freight Rail Improvement Project Experiences".

The PES Annual Meeting will also feature the election and installation of officers and trustees for the coming year.

This spring, James R. Capaldi, P.E. completed his 33rd year with the Rhode Island Department of Transportation in the service of our State. As Chief Engineer, his responsibilities include directing, coordinating, and integrating the activities of program development (planning and design), project implementation, and project monitoring.

During his early years with the Department (prior to 1982), his responsibilities were commensurate with the positions he held initially, ranging from Project Engineer to Supervising Civil Engineer of the Road Design Section (1977 - 1982). As Chief Design Engineer from 1982 to 1987, he planned, directed, and supervised a comprehensive infrastructure construction and rehabilitation program.

From 1987 to 1989, Mr. Capaldi was a Senior Vice President of Operations of a major Rhode Island consulting engineering firm, where his responsibilities included directing and coordinating the firm's divisions of planning, highway, structural, traffic and architectural design, land development, survey, and construction management.

In 1989, Mr. Capaldi returned to the Department as Chief of Construction Operations, where he oversaw the administration of the statewide road and bridge construction program. This assignment, which extended until 1993, encompassed the supervision of a large, diverse engineering and technical staff.

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Make Your Reservations For The PES Annual Meeting To Be Held Thursday, June 20, 2002 At The Kirkbrae Country Club Call 434-2332 Today!

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Calendar of Events

For up-to-date event information, go to the PES Online Calendar, accessible through the PES Website at www.provengsociety.com.

AFFILIATES, PLEASE NOTE: Be sure to forward your event information to the PES Office at proveng@netzero.net for posting.

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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.

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"ANNUAL MEETING" continued from page 1

From 1993 to 1994, Mr. Capaldi served as Chief Transportation Engineer responsible for directing the activities of the Department's Planning, Design, Real Estate, and Research Divisions. This involved all the disciplines of program development.

Since 1994, Mr. Capaldi has served as the Rhode Island Department of Transportation's Chief Engineer.

During a recent conversation with Mr. Capaldi, he commented on how diverse and interesting his career has been working for the Department on all levels, from road design to planning and administration to construction, and now as Chief Engineer.

Mr. Capaldi earned a Bachelor of Science in Civil Engineering in 1969 from the University of Rhode Island. He is a registered professional engineer in the State of Rhode Island and a member of the American Society of Civil Engineers.

To make reservations for the 2002 Annual Meeting, contact Dorothy Sadowski of the PES Office at 401-434-2332. Meal choices include Chicken Francaise with Lemon Butter Sauce or New England Baked Scrod. Tickets are \$30.00 per person. Cocktails will be served at 6:00 PM with dinner and program to follow at 7:00 PM.

Larry's Corner

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

Out Of State "Professionals"



Invariably we become involved in working with out of state professionals. Usually it is with Architects. This not being bad enough, they often bring with them certain out of state engineers. Every time I get involved with one of these jobs, I always say, "Never Again". One group was from Canada. When we sent our proposal, we quoted it in dollars. United States dollars! When they signed the proposal, they were thinking Canadian dollars. Our first bill was for around \$4,000. We received a cheque for that amount in Canadian funds. Came to about \$2500 US. We called them and said,

"Nice try"! Big problem. Their client was a Canadian firm. They and their client had not realized that our proposal was in American money. The \$-sign is the same in both countries. It never occurred to them that they would be spending that much. It never occurred to me that what with the job being in Rhode Island, that we were talking anything but good old greenbacks. We finally prevailed. Towards the end of the job, they called asking for a favor. Would we mind dropping the plans to the various agencies, so that they wouldn't have to fly down to Rhode Island. This meant dropping plans to the building official, the plumbing inspector, the electrical inspector, the fire chief, the planning department, the public works department, the traffic department, the sewer authority, the State Fire Marshall's office, the State ADA office, the State Building Commission Office, and FEMA. I am sure there were others that I have forgotten. I told them that I was planning to use my vacation time that year to go on a cruise, not to run around delivering their plans. I explained that it was going to take the better part of three days to do all of that. They would be best served by coming down and running around to the various places. I pointed out that there were numerous applications they needed to complete and a lot of cheques to write. I recommended that they write the cheques in American dollars.

We were sent an RFP by an architect in Albany. Part of the proposal was for attendance at weekly job meetings during the plan development stage. I could walk to the actual job site from my office. All the other engineers, to be involved, were in East Providence or Providence. I received an e-mail telling us our proposal was accepted and asking me to attend the first meeting on the next Friday. At 8:00am. In Albany. That week and every week thereafter. I called some of the other team members and found they were as surprised as I about the location of these weekly meetings. The architect was shocked that we were all expecting them to be held in RI. He would have to leave Albany at 4:00am or come down the night before. We told him he was only expecting four of us to do the same thing. This became very easy. We all told the architect that we either met in RI or he could assemble a new team. Well he would just do that. He had wanted to use local design professionals but he would now assemble a group in Albany. The next call I got was from an engineer I knew in Troy, NY. Could I let him know what he had to do to get registered in R.I. I explained the comity procedure and the requirement for a Certificate of Authorization from the Board of Registration. I explained that it required registering his firm with the Secretary of State's office. He asked me if I would be interested in doing the job, as a sub. I explained to him my history with the project. A short time after this, the Architect called. How's about if we had bi-weekly meetings and alternated them between Providence and Albany. That would mean less than half a

Turn to "OUT OF STATE 'PROFESSIONALS'" on Page 4

"OUT OF STATE 'PROFESSIONALS" continued from page 3

dozen trips to Albany. Now I've been to Albany. It is not a place I would want to visit on a regular schedule. I declined this generous offer. He asked me if I knew anyone who might be interested in doing the job and would be willing to go to Albany. I said that I did. I gave him the name of my friend, in Troy, NY, whom he had already approached. That seemed to end that conversation. The job finally was done by a local Architect with all local engineers. We weren't part of that group, but I figured at least I didn't have to go to Albany every week.

An architect in Connecticut sent e-mails, to all the team members, late Friday afternoon. They needed original drawings with stamps and a wet signature sent to their office. They needed them by 10:00am the following Monday. I accessed my e-mail from home, over the weekend, and briefly considered going to the office. I thought I could assemble the originals and box them up and drop them at FedEx for a Monday morning delivery. I thought about it very briefly. For about a nano-second. Monday morning I went to the office and opened my e-mail. I called the architect and asked why they hadn't called with this urgent request. It would not be possible for me to get him the plans. He wanted to know if I could have someone drive them to Hartford. I said that when he drove up to Rhode Island to pick up the plans, he could drive them back to Hartford. He called back and asked if I would be willing to take the plans to the Greyhound bus station in Providence and seeing that they were put on a bus to Hartford. He would pick them up at the bus station, there. It didn't seem unreasonable, so I said okay. He then asked if I would mind picking up the plans from the other team members and taking all of them to the bus station. That didn't sound like a reasonable request. I did say that if he wanted to have everyone drop their plans at my office, we would assemble them into one package and take it to the bus. We had a plan; right up to the point where he asked me to call the other team members to co-ordinate the process. I told him I would overnight our plans to him and he would get them on Tuesday. I wished him luck in getting his other plans.

A client hired an Architect from "North of Boston". They hired an HVAC/plumbing engineer from either further north of Boston. Their plumbing designer was in a branch office somewhere up in the "Crown of Maine". He didn't come to job meetings. Early on, I mentioned that it was going to be necessary for the plumbing engineer to co-ordinate with the Narragansett Bay Commission. A pretreatment permit was going to be required. I mentioned grease traps for the kitchen and consideration of the laundry facility. The Architect told me that this had been done. I asked if they had met with the Bay Commission. Yes they had and everything was done to the Bay Commissions requirements. I asked if they had filled out a pretreatment permit application and received the same affirmative answer. Now I had asked the question three times. All three times I was told that it had been done. I dropped it, even though I didn't believe the answers I had received. I gave them a copy of the sewer permit application and asked that their plumbing engineer fill it out and return it to me. After six weeks and about five different attempts, I filled out the application, myself. From their feeble attempts, I gleaned enough information to successfully complete it. A short while later I took the Civil/Site plan to the Bay Commission, to be reviewed. No problem. They needed to apply for a pretreatment permit and then the new sewer connection could be approved. We called over to pretreatment and no one there had ever heard of this job. I called the Architect and he called the plumbing engineer. The plumbing engineer called me. He was incredulous that the local sewer authority would have its own plumbing requirements. I wasn't. Nor would anyone else who worked in Rhode Island. I recommended that he go meet with the Bay Commission and go over what he needed to do. He opted to call the Bay Commission. By this time he was probably snow bound. A couple of weeks later the Architect called. Their plumbing engineer had read the material and decided that it would be best to go with an outside grease trap. As it was to be more than five feet from the building, he believed that the Civil/Site engineer had the responsibility for the design. I told the Architect that they had better just plan on putting it inside, under the sink. I asked why the electrical engineer had not insisted on my designing the transformer, as it too was more than five feet from the building. The

Architect called the plumbing engineer and gave him the bad news that he was going to have to do his own work. Not totally bereft of hope, the plumber said that he would design it, if I would size it. The Architect relayed this latest request. I told him that I could almost understand his hiring someone who worked six to seven hours from the job, but I couldn't understand his hiring someone who didn't know anything. If a plumbing engineer couldn't figure out how to size a grease trap, they really don't want him on the job. It wasn't that he didn't know how to do it, he just couldn't figure out the Bay Commission requirements. He was too embarrassed to keep calling there. If I were to size it, it would simply be a matter of my going over and meeting with them. That would be so much easier for me, than for him. Now I understood. What I really understood was that I wasn't going to do someone else's work because they were too far away to do it.

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PES Board of Trustees Announces 2002-2003 Slate of Officers

The Board of Trustees of the Providence Engineering Society recently approved and submitted its proposed Slate of Officers for the Board of Directors for the 2002-2003 year as listed below:

President

Mr. David C. Bowen, P.E.

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Mr. Mark E. Felag, P.E.

2nd Vice President

Mr. Douglas J. Allam, Jr., P.E.

3rd Vice President

Mr. Henri Arts

Secretary

Mr. John P. Shevlin, P.E.

Treasurer

Mr. Frederick A. Burnham

Additional nominations for the above offices remain open and must be filed with the Society office.

Nominations must be signed by at least thirty voting members in good standing of the Providence Engineering Society.

The above offices will be elected by vote at the Annual Meeting scheduled for Thursday, June 20, 2002 at the Kirkbrae Country Club in Lincoln, RI.

Pawtucket Red Sox Outing

Sponsored By: The Younger Member Group of the Rhode Island Section of the American Society of Civil Engineers

Red Sox vs. Toledo Mud Hens

(Detroit Tigers Farm Club)

Date: Friday, May 24, 2002

Time: 7:05 p.m.

Cost: \$7.50 per SEAT

To reserve a seat, contact Douglas Allam by May 17, 2002. 25 seats are reserved and will be distributed on first come first served basis. Two ways to contact him are: by telephone at (401) 738-5660 or by email at douga@crossmaneng.com.

ASCE Holds 4th Annual Mock Interviews

written by Doug Allam

The RI Section of ASCE returned down to historic Bliss Hall at the University of RI campus to hold their fourth annual Mock Interviews. This year's attendance included eight students, ranging from juniors to seniors, with one graduate student who participated in the process. The event was again successful thanks to the following four volunteers who donated their time and services in conducting the interviews: Diane Badorek from the Rhode Island Department of Transportation, Richard Bernardo from BETA Group Inc., Thomas Cunningham from Commonwealth Engineers and Consultants, Inc., and Robert Smith from the Rhode Island Department of Transportation. Each interviewer gave a brief background on themselves, their company and the type of work they are involved in to the participants.

As in the past, the agenda included pizza and refreshments being served prior to the process to all participants.

After the event Jim Primeau, the URI ASCE student chapter president, invited all the participants down to the basement to witness the chapter's concrete canoe. The URI student chapter is currently in the process of preparing for the 2002 New England Regional Concrete Canoe Competition. The student chapter is aiming for their seventh consecutive win with this year's entry Rhode Hog.

Engineers Study WTC Collapse

By SHANNON McCAFFREY

WASHINGTON (AP) - Fireproofing that sticks to steel beams and emergency stairwells "hardened" to withstand the catastrophic impact of a plane should be included in high-risk buildings in the wake of the World Trade Center collapse, a federal study says.

The report from the Federal Emergency Management Agency and the American Society of Civil Engineers also said the trade center's unique steel supports - called trusses - "may have played a role in allowing the buildings to collapse in the manner that they did." But the report said more study was needed before a final conclusion could be drawn.

The report said investigators detected no substandard structural problems at the trade center. In fact, the towers exceeded building code requirements in some areas, the report noted.

The report, which was obtained Tuesday by The Associated Press, confirmed the consensus that barring a windstorm or an earthquake the twin towers could have withstood the impact of the two hijacked Boeing 767 airliners that plowed into the trade center on Sept. 11. The towers succumbed to the ensuing fire - fed by thousands of gallons of aviation fuel - that softened the buildings' steel framework.

"The fact that the structures were able to sustain this level of damage and remain standing for an extended period of time is remarkable and is the reason that most building occupants were able to evacuate safely," according to the report, which was to be released Wednesday by the House Science Committee.

Still, the report said it was unclear whether engineering ever could protect buildings from fast-moving aircraft. "Reliably designing a building to survive the impact of the largest aircraft available now or in the future may not be possible," the report said.

Professor Jonathan Barnett of Worcester Polytechnic Institute, one of the study's investigators, said the study proved overall the trade center performed well on Sept. 11.

"We didn't find a glaring blunder," Barnett said.

Still he conceded that the overall findings "could have a chilling effect on construction" of tall buildings.

The National Institutes of Standards and Technology is poised to take over the trade center collapse investigation, which it expects to take two years and cost \$16 million. NIST could eventually make broad recommendations to the building and fire codes using the trade center findings.

One key question will revolve around the trusses, the bracket-like steel supports which held up each of the 110 floors and provided lateral support to the skyscrapers' vertical columns.

Another will be whether fireproofing and stairwell safety recommendations for buildings "evaluated or designed for extreme events" should apply to structures generally.

The impact of the jets is believed to have blown off the fluffy fireproofing material on the trade center's steel columns, making them susceptible to the intense heat from ensuing fire. Fireproofing able to withstand such impact is used in U.S. Navy destroyers but the cost could be prohibitive, Barnett said.

In theory, the team found, occupants in the floors above the impact could have escaped had the stairwells been strengthened to withstand the attack and had the emergency escape routes not been placed so close together.

The two Boeing 767s slammed into the twin towers on the morning of Sept. 11. The north tower, struck first, stood for 102 minutes. The south tower fell 56 minutes after impact.

The suicide terrorist attack left 2,823 people dead or missing, though many thousands more escaped. Most of the victims were trapped in the floors above where the jetliners struck.

A large portion of the approximately 10,000 gallons of jet fuel in each plane was quickly consumed in massive fireballs that caused structural damage. But it was the remaining fuel that spilled across floors and down elevator shafts, setting ablaze furniture, computers, paper files and the planes' cargo over multiple floors and igniting an inferno.

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