



# SPOTLIGHT ON MAINTENANCE

July/August 2005

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## **Ohio Public Facilities Maintenance Association**

VISIT OUR WEBSITE AT [WWW.OPFMA.ORG](http://WWW.OPFMA.ORG)

## Vice President's Message

Constantin, our President, is on vacation for the month of July. With an article due for the newsletter, I was asked to fill-in. So here goes. As they say, "good luck folks".

This is a period of unprecedented growth for OPFMA. Our President and the OPFMA Administrative staff have been extremely busy developing the Building Operator Certification program (BOC). Thanks to their good effort, with assistance from others, the BOC Program has now established classes in Columbus, Cleveland, as well as in Cincinnati, and Lima where the BOC classes are running as we speak!

That's a tremendous achievement; especially since each location requires a facility to hold the classes, a site coordinator, registered participants, a group of instructors, and the course materials.

The coordination necessary to bring it all together is extraordinary. If you don't know what the BOC program is, take a look at the OPFMA web site [www.OPFMA.org](http://www.OPFMA.org) for an explanation. You'll also have an opportunity to find out more about the program at our 19<sup>th</sup> Annual Conference and Trade Show.

Speaking about "unprecedented growth", how's yours?

In these challenging times of organization down-sizing, lay-offs, and restructuring, we each need to re-dedicate ourselves to the continued growth of our job skills. We also need to have an understanding beyond the immediate description of our specific job duties; to see the bigger picture.

Active participation in continuing education programs can be a huge benefit for each of us; to help us GROW. And, we each need to grow in knowledge whether we are new to the field of facility maintenance or if we've been around for few decades.

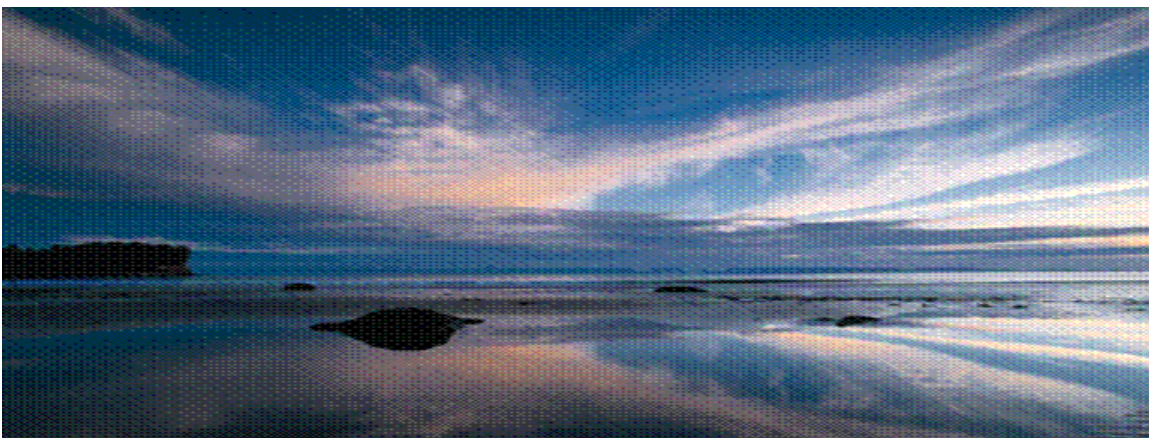
Consider making a promise to yourself. Make a promise to take advantage of each opportunity to learn more about your specific job AND about ways to improve the maintenance of facilities. By doing so, you will grow in knowledge and be more valuable to your co-workers and your employer.

Plan to participate in a program that will help your personal growth; join us October 31<sup>st</sup> and November 1<sup>st</sup> at the OPFMA Conference and Trade Show.

Make an investment in your future. Plan now to begin your own "period of unprecedented growth".

Wayne King

**OPFMA is prepared and eager to walk along with you in the new tomorrow!**



## 2005 Annual Conference – A Closer Look!

As our 19<sup>th</sup> Annual Conference is getting closer, all OPFMA Members should start thinking and talking about attending it.

For almost two decades we've made The Annual Conference our main avenue of expressing our appreciation and support to our members.

OPFMA's chosen mission from the very beginning was to address issues of vital interest to you, and to contribute to your continuing education.

In appreciation of your hard work of providing Ohioans with a safe, healthy and a quality work environment we are putting together the Annual Conference as we've noticed that people working in the maintenance field have very few events, designed with them in mind, to attend!

We've also all noticed that in the recent years a higher efficiency is expected of you with a less budget provided to accomplish the job.

With this in mind, the Conference Committee and our Administration are working together to create an interesting and useful Conference program and Trade Show to assist you with the challenges of your job! Please make plans to be there!

**The 2005 Conference and Trade Show will be held at the Columbus Marriott North, on October 31<sup>st</sup> and November 1<sup>st</sup>.**

If you need overnight accommodations on October 30, 31 and/or November 1, please call the Columbus Marriott North at **(614) 885-1885**.

The Marriott North is holding a block of rooms for us at a special conference rate of only \$ 92.00 plus applicable taxes.

Available rooms at this rate are limited, so hurry and call the hotel as soon as you are able to make a reservation. Be sure to mention your participation in the OPFMA Conference and Trade Show to benefit from the special rate.

We're designing the layout of our Conference on

the foundation provided by your evaluation of our previous Conferences; that's the reason of keeping the same format of four tracks with six sessions per track. Thank you for your input!

We're working on details keeping on eye on past experiences and implementing new ideas.

Shaping the Conference's content is a continuing transformational process.

We'll let you know more details as soon as it's cast in stone!

The Exhibitor Brochures are in the process of being printed and they will be distributed to our Exhibitors around the country in the first half of the month of August.

Meantime, to learn about our progress please check our web site at [www.opfma.org](http://www.opfma.org)

Don't forget to mark your calendar - Come to learn and have fun!



**Dates -Monday October 31<sup>st</sup> and Tuesday November 1<sup>st</sup>**

**Location - Columbus Marriott North**

Looking forward to see you there,  
Alexandra Schneider

## Ohio's First BOC Instructor View

I was privileged and blessed to be one of the BOC instructors. It is a pleasure to work with highly professional people such as Alex Schneider and Cornel Pod. Like many training sessions that happen all over the State of Ohio, the items that have to be done before hand are tremendous and the transition is seamless. When the students arrive at the training site all they have to concentrate is their studies. Keep up the good work.

I am amazed at the transition of people as they progress through the series of courses. Meek as a lamb at first and then they start to come out of their shells at the end. The people get revitalized with the knowledge they have achieved. Hopefully this would be translated into their daily work activities making them more valuable to their employer. Sometimes we learn what we don't know.

I believe one of the biggest problems we face is not sharing. You should always have a sharing attitude. Share things you've done that are both good and bad. Remember we learn more from our mistakes. Some people have learned a whole lot more than others. But in turn, people are more willing to share their experiences with you also. Learn from the mistakes of others since you cannot live long enough to make them all yourself.

The BOC series of courses reminds me of a story. Let me explain. In Tibet, there were 3 monks. There was a very wise old monk in his 80's and two young monks in their 20's. No matter what the young monks asked the wise monk, he always had an answer.

Well, the "Generation X" monks started to get a little big-headed. So, they decided to try and trick the elder monk.

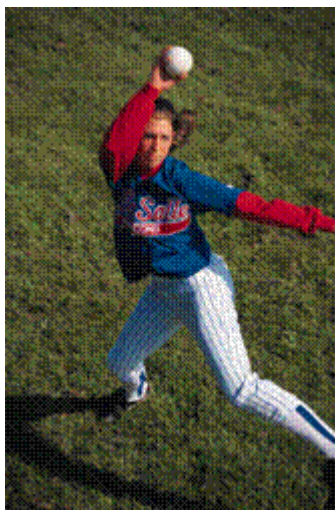
One of the younger monks decided that he would cup a baby bird in his hands and ask the older monk if the baby bird was dead or alive. If the elder monk said that the bird was alive, he would crush it and kill it, thereby making the older monk wrong. If the monk said that the bird was dead, then he would open his hands and let it fly free, again proving the monk wrong.

Together, the young monks approached the wise monk, bird in hand. When the younger monk asked him if the bird cupped in his hands was dead or alive, the wise old monk answered, "Son, the answer lies in your hands."

That's what I can say to any and all OPFMA members. BOC training can change your business and your bottom line. Results can include reduced energy costs, reduced down time, better trained and more confident employees. OPFMA has put together a training schedule that offers tremendous opportunities for you and your staff.

If you don't take advantage of all it offers, it's no one's fault but your own; the responsibility lies with you -- - "it's in your hands."

Richard Wirtz



## The Lima City Schools Commitment to Professional Development

The Lima City Schools partnered with the Ohio School Facilities Commission to newly construct or renovate all of the schools in our district, affecting over 750,000 square feet. Upon receiving the business portion of the maintenance plan, it became apparent several departmental changes were in order.

The business portion of the plan takes into account our current staffing levels and duties. With this information, the percentage of in-house repairs and preventative maintenance versus outsourced repairs and preventative maintenance was determined. In reviewing the percentages, it became apparent that the district could save money by raising the expertise and realigning the duties of our current staff. With the varied levels of staff expertise, we decided to give all maintenance staff a strong basic understanding of a complete modern facility and its various systems.

After viewing the Building Operation Certificate program available through the Ohio Public Facilities Maintenance Association, in collaboration with the Ohio Department of Development and the Midwest Energy Efficiency Alliance, we decided this program fit our needs. The program includes BOC 101 – Building Systems Overview, BOC 102 – Energy Conservation Techniques, BOC 103 – HVAC Systems and Controls, BOC 104 – Efficient Lighting Fundamentals, BOC 105 – Maintenance and Related Codes, BOC 106 – Indoor Air Quality, and BOC 107 – Facility Electrical Systems.

The training is being held at our own Academy of Learning facility that is used for the district's overall professional development. To date, we have completed two of the seven classes with positive feedback from our staff. Upon completion of this training, we will continue professional development on specific systems and components.

All efforts focus on meeting and exceeding the demands to efficiently maintain our facilities, in accordance with the overall district maintenance plan, to assure a positive learning environment for our students.

Randall Crossley  
Supervisor of Plant Operation  
Lima City Schools



**Lima Academy of Learning - 522 W. North St., Lima, OH 45801**

## Building Operator Certification (BOC) Program

**Building Operator Certification** is a professional certification for staff that operates and maintains commercial and public buildings.

Operators earn certification by attending training sessions and completing project assignments in their facilities. The certification provides a credential for their professional development while also offering employers a way to identify skilled operators.

The Ohio Department of Development has obtained a license for implementation of the BOC program in Ohio. OPFMA is a non profit educational organization and at this time it's the only organization that teaches BOC Program throughout Ohio.

BOC certifies individuals in energy and resource efficient operation of building systems at two levels:

Level I - Building System Maintenance

Level II - Equipment Troubleshooting and Maintenance.

Participants attend eight days BOC classes, and upon successful completion of each class tests and in-facility projects, they receive the Building Operator Certificate from the Northwest Energy Efficiency Council.

OPFMA established the foundation for the BOC program in another two cities this year, and working on adding more.

BOC Program gets lots of attention among those who provides us with safety and wonderful living conditions in public facilities. It is useful for Building operators as well as for the Building Management.

The program has been successful at improving the comfort in public facilities as well as saving energy and money.

The Northwest Energy Efficiency Alliance found that over 65% of BOC certified operators are applying concepts learned in training and 26% undertake specific measures such as large energy conservation projects and IAQ improvements. They also estimate that there is an average annual energy savings of 28,600 kWh per participant.



### Current BOC Classes in Ohio!

**Cincinnati and Lima!**

#### New OPFMA Member – New BOC Class Schedule – LIMA City Schools

OPFMA is delighted to introduce to you our NEW Member, Lima City Schools! There is something unique and memorable about Lima City Schools that we'd like to share with you.

Upon becoming an OPFMA Member Lima City Schools took full advantage of their membership and enrolled **17 students** in the BOC Program. They asked for a **special layout** of the **BOC Course** and **offered to host the BOC course!**

BOC Lima Schools started on July 7<sup>th</sup> 2005 and will end up on Aug 25<sup>th</sup> 2005. Our BOC classes are held every Thursday – it is a compressed BOC course that fits Lima Schools' special needs.

Lima City Schools certainly cares a lot about their employees, and the quality of their service to the Lima community.

We hope their example will be followed by other school districts that value the maintenance of their facilities and the people providing it.

#### Latest News about BOC Cinci Class

There will be a **New Host** for our BOC Cincinnati Series **starting with Aug 16<sup>th</sup> 2005.**

OPFMA Administration addresses this matter in a special message to our students in the article on the next page.

## Administrator's Message to BOC Cincinnati Class!

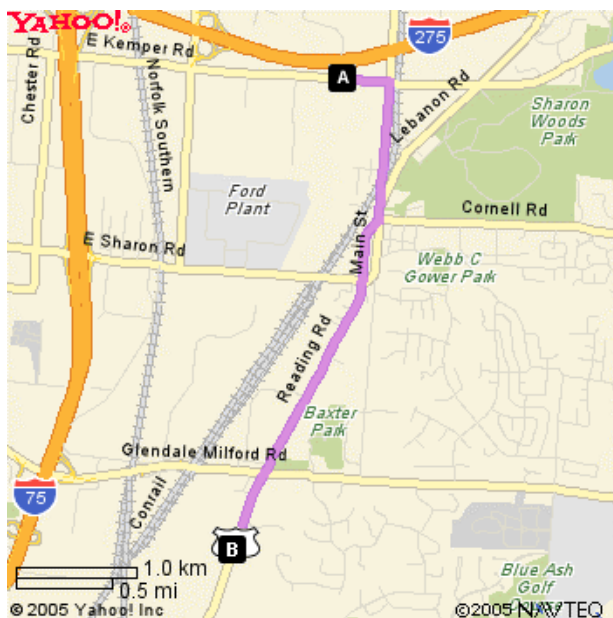
Our Building Operator Certificate course held in Cincinnati is half way through!

We'd like to take this opportunity to acknowledge our students' great dedication, performance and their unparalleled attendance!

These special qualities make us believe that this class can easily handle unexpected changes that somehow, not by our choice, we are faced with today!

Due to unpredicted and unplanned construction work starting at the Great Oaks facilities we are forced to relocate our BOC Class to another facility.

We are pleased to announce that the new place is only at **2.8 miles from Great Oaks about 6 minutes away.**



**Starting with Aug 16 2005 BOC Class, and until the end of the course, our BOC Classes will be held at the new location.**

Our New Host is:

**Cincinnati State Technical and Community College,  
10100 Reading Road, Evendale, Ohio 45241.**

Please use the Internet (i.e., Yahoo MAPS Driving directions) to find out the best directions from your place to the new location.

OPFMA is doing all that's in our power to have a smooth transition and we apologize to our great students for the inconvenience.

Our Site-Coordinator, Mrs. Lori Kilian will be there to make sure your needs are met and to assist you in this transition.

We hope that you are pleased with the caterer "Kads Deli's" service as we've made arrangements with them to continue serving your meals until the graduation!

If you have any questions please feel free to contact our Administration at:

**(866) 570-7880** or email to [Alexandra@opfma.org](mailto:Alexandra@opfma.org)

We appreciate your cooperation and wish you a very successful graduation!

Keep up the good work!

Alexandra Schneider

### Tips for back strain and driving

To reduce the strain on your back:

\*Keep your head and shoulders erect while driving. Place a 1 ½ inch-thick pillow at the small of the back. Keep the back pressed against it.

\*Change driving position often

Take frequent breaks to stretch and do some of the following:

\*Hold your forehead and push your head against your hand. Do it slowly for three times. Repeat for each side of the head.

\*Grab your wrists, and raise your arms to shoulder height. Try to pull your arms apart for a count of six. Repeat three times.

## BOC Partners Meeting!

Beside having the Board Meeting and the Conference Committee meeting in the month of June, OPFMA has had a BOC Partners Meeting – it was the highlight meeting of the month!

On June 10<sup>th</sup> OPFMA Board Members and Administration staff got together with representatives from the Ohio Department of Development and the Midwest Efficiency Energy Alliance for a face to face meeting.

The cordial atmosphere and willingness to look for better solutions made the meeting fruitful and productive. Cost analysis, marketing, networking support and cooperation was discussed from many angles and a scope of work was drafted regarding the development of the BOC program in Ohio.

It was unanimously accepted by the participants that there was an intense effort and huge steps taken for the future by OPFMA in the year of 2005. It was agreed that with more support and increased interaction among the three Partners a lot more can be achieved in the years to come.

We'd like to take this opportunity to let ODOD and MEEA know that OPFMA appreciates their support and consistent interaction in our huge endeavor to cover Ohio from North to South, and from East to West with the BOC Certification Program. OPFMA's mission is to facilitate the continuing education of maintenance people around Ohio as they provide great services to our communities, always on the job whether there are severely cold winter storms or unbearably hot and humid summer days!

Succeeding in our mission, Ohioans and especially our schools, will benefit from a safer and healthier working environment provided by a better prepared and more confident maintenance staff throughout the state.

**Thank you to both of our BOC Partners for supporting this great cause!**

### **OPFMA Board Members and Contact Information**

#### EXECUTIVE BOARD

**President**                      **Constantin Draganoiu**   Cleveland State University      [c.draganoiu@csuohio.edu](mailto:c.draganoiu@csuohio.edu)

**Vice-President**              **Wayne King**   Franklin County Facilities Management      [wcking@co.franklin.oh.us](mailto:wcking@co.franklin.oh.us)

**Secretary/Treasurer**      **John Beckemeyer**   Oak Hills School District      [beckemeyer\\_j@oakhills.hccanet.org](mailto:beckemeyer_j@oakhills.hccanet.org)

**Immediate Past President**   **Larry Wiesen**   Brunswick City Schools                                      [lwiesen1@neo.rr.com](mailto:lwiesen1@neo.rr.com)

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**Tom Hirsch**      Beachwood City Schools                                      [tah@bw.beachwood.k12.oh.us](mailto:tah@bw.beachwood.k12.oh.us)

**Ralph Linne**      Hamilton County Courthouse                                      [rw1@cms.hamilton-co.org](mailto:rw1@cms.hamilton-co.org)

**Dr. Anunike, Emmanuel O (Ex-Officio)**   ODOD/Office of Energy Efficiency      [EAnunike@odod.state.oh.us](mailto:EAnunike@odod.state.oh.us)

#### OPFMA next Board Meetings Schedule

**Executive Board & Conference Committee Meeting - Aug 17 2005**

**Conference Committee Meeting - Sep 14 2005**



## Managing Facilities — by Thomas J. Hand CFM CFMJ

In June I instructed BOC course 103, HVAC SYSTEMS AND CONTROLS, to a sharp group of facility professionals in Cincinnati. One area that came up for discussion concerned the proper operating pressure of hot water heating systems. The ramifications of an incorrectly pressurized system include popping relief valves, excessive water consumption, over-pressurization of the system and problems with the Energy Management System shutting off portions of the system due to pressure readings outside the norm.

I have seen a wide variety of system problems caused by commissioning oversights, installer error or a lack of understanding as to how hydronic systems work. Several class members shared their same experiences and frustrations. Realizing that all of these problems are related to incorrect system pressure, we embarked on a brief session about how to solve these problems.

First, we need to understand some basic aspects of water. Water does not compress but it does expand when heated or frozen. In a closed hot water heating system, the boiler causes the water to expand. The expansion tank is an air chamber that allows for the water to expand without the system being over-pressurized. It is important to not that the expansion tank must be sized according to three critical factors; the water capacity of the system, the maximum height of the piping system and the BTU capacity of the boiler.

Second, we need to clear up some misconceptions about hot water boiler feed pressure reducing valves (BPRV), expansion tanks, and “the standard operating pressure of hot water heating systems”. The boiler PRV is the valve that reduces potable water system pressure to a pressure that boilers operate at. Most hot water boilers, and their relief valves, are rated for 30 PSI maximum. The typical boiler PRV is preset for 12 PSI. The typical expansion tank is pre-charged to 12 PSI. **BUT THERE IS NO SUCH THING AS A STANDARD OPERATING PRESSURE.**

The boiler PRV has an adjustment screw that allows the technician to set the pressure to match the system requirements. The expansion tank is equipped with a Schrader valve to permit the technician to increase or decrease the pressure to match the system requirements by increasing or decreasing the air pressure.

So why do the boiler feed valve and the expansion tank come preset for 12 PSI? The manufacturers decided on this setting because it works in most systems found in homes and commercial buildings which are only a few stories high. There are exceptions and the manufacturers do provide written instructions for changing the setting of the pressure reducing valve.

*What you need to remember are two related constants about pressure and height. One pound of pressure will raise a column of water 2.81 feet. A pressure of .434 pounds will raise a column of water 12 inches.*

So if you have a school with a boiler in the basement and hot water units suspended from the gym ceiling, and the developed height of the hydronic system is 30 feet, a preset feed valve at 12 PSI will not adequately charge the system. The boiler feed valve will only charge the system to 28.31 feet. Factor in pipe friction losses and you are even shorter of reaching the high point of the system. So the boiler feed valve should be re-calibrated about 5 PSI to 17 pounds to assure adequate pressure and to overcome losses due to pipe friction. Now the water is able to go as high as 40.105 feet. But don't forget the expansion tank! After you have re-calibrated the feed valve to a 17 PSI operating pressure, you need to raise the air charge in the expansion tank to 17 PSI.

If your expansion tank and the boiler PRV settings are not correctly set, various things can occur. An undercharged expansion tank will not cushion the expansion in the system and the pressure will rise greatly as the boiler reaches maximum operating temperature. Indicators of this are the pressure gauges on the boiler and the relief valve dumping. For example, my experience is that a fluctuation of no more than three PSI is normal on a system with a 22 PSI charge when the boiler is not operating. On small systems, the pressure change can be only a pound or less.

Another cause of wide pressure fluctuations is when the expansion tank has lost its' air charge and is waterlogged. When the system is at rest is the ideal time to check the charge on the expansion tank. Usually the tank will need to be service once a year but if it is requiring frequent draining, this indicates a leak. Again, experience has shown this is usually caused by leaking gaskets or valve packing on the sight glass gauge on the expansion tank.

Other problems related to over pressurization can give the Energy Management System a reading of high pressure in the system. Causing the pumps to shut off or reduce their speed. The EMS is reading the high pressure as an indicator of closed thermostatic heating valves causing high pressure. In actuality, the thermostatic valves are open, calling for heat, and it is 10 degrees outside. The pump shuts down and that section of the facility loses heat and freezes.

Any piping system is best operated at the lowest reasonable pressure. Although it is a simple case of determining maximum system height and matching that requirement to the Boiler feed PRV and that to the charge on the expansion tank, this is an often overlooked commissioning detail that can result in a host of problematic situations.

## Computer Tips – by Cornel Pod

### Keep your desktop PC cool:

With each passing year, computers are built to run faster and faster, but they are **very sensitive** to room **temperature** and **dust**.

To significantly increase the life of your newer PC and save money:

1. Keep the PC room's temperature cool. Avoid placing your PC near heat sources.
2. Place your PC in an area that allows good air circulation. Make sure there is adequate space under the case for air intake.
3. If your PC is used in a dusty environment, have a technician check it for dust build-up.

### Bookmark your search engines:

The Internet brings a wealth of information at your fingertips. You can search for just about anything using a search engine.

Yet one little mistake as misspelling the name of the search engine – will take you to an unknown host that could load viruses on your PC (known as spam or malware). When that happens to clean up your computer of viruses could be a very time consuming and costly process!

**Protect your computer – type correctly the address** of the website you plan to visit. Once you have the right website address – bookmark it by adding it to your “Favorites” for later use!

## Publication and Submission Information

“Spotlight on Maintenance” is the official publication of the Ohio Public Facilities Maintenance Association. Spotlight is published and distributed in the second half the months of January, March, May, July, September, and November.

Deadline for submissions or articles and photos is the first day of the month of publication.

All documents for submission must be submitted in Word Format and sent as an attachment to email.

All photos must be in JPEG or TIFF format and sent as an attachment to email.

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**Members, please help us serve your interests better. Share your opinion, your achievements or challenges!**

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