May 2010

ASPE NEWS

American Society of Plumbing Engineers

Eastern Michigan Chapter

http://aspe.org/Eastern_Michigan

Serving our membership since 1975 *Vol. 13, Issue 9*

Plumbing Design Classes

Date: **Tuesday, May 18, 2010**
Where: Plumbing Industry Training Center
SEE map on back page

ASPE HANDBOOK & VENDOR CLASSES
3:30 - 5:30 PM

Basic: Plumbing & Mech. Estimating
Vendor: Chemical Waste DWV Applications Review
Speaker: Paul Riedinger, LEED AP
See page 3 for program & speaker

DINNER
5:30 - 6:00 PM

Cost: ASPE, ASSE, MBPA Mbrs: NC
Non-members: $15.00 FOR DINNER

DESIGN CLASS
6:00 - 8:30 PM

Topic: Chemical Waste Systems

Speaker: Christopher Ziu, PE
See page 3 for program & bios

See the full event schedule on our web site.

REGISTRATION REQUIRED
RSVP by the Friday prior to day of class to:

David Rhodes, VP Tech:
drhodes1vptech@aol.com

inside...

PRESIDENT'S REPORT

John R. Nussbaum, IPP, FASSE

Potpourri (A little bit of everything!)

The ASPE Eastern Michigan Chapter is allowed five (5) delegates to the convention in Philadelphia on October 30 through November 3, 2010. I would encourage any and all members of the Chapter to plan on attending the convention and take in the educational programs as well as the most attended plumbing trade show in the industry. I have not yet selected the five (5) delegates and/or back-up delegate. I first would like to know from the membership which *full members* are planning on attending. Philly is within driving range saving airfare. Member registration is currently set at $695 per member, thanks to our region chairman speaking out at the national board meeting held recently. I am told that for attending this year's convention the gift alone is worth registering for the convention.

I am planning on attending the Presidents Meeting on June 3-4, 2010 being held in Pittsburgh, PA, and two others may be attending with me from the Chapter board of directors. It is important to bring in and mentor future leaders of the Chapter and have them to understand what is happening within the region and let the region chairman carry the Chapter and region message back to the national board of directors. Mitch Clemente, our regional chairman, has been listening and reporting well on behalf of the chapters within his region.

Program Planning

The Educational Planning Committee is meeting at 8:00 AM on Saturday, May 22, 2010, at the MCA Detroit offices (14801 W. 8 Mile Road) to put together the programming beginning in September 2010 and ending in May of 2011. ***Anyone*** wanting to attend and/or contribute please join us or e-mail your suggested program, wants and needs to Cassie, Mary or myself (see emails below) prior to the May 22nd meeting. This would include suggestions for Joe Hernandez's class. Right now, because of the forthcoming work in the medical facilities—hospitals, clinics and other institutional facilities—in connection with the DMC (Detroit Medical Center), Joe is putting together a medical gas design program to be presented over several months starting in September from 3:30 PM till 5:00 PM at the Plumbing Industry Training Center and sponsored by ASPE / ASSE.

I am once again offering the manufacturers a time slot from 3:45 till 5:00 PM in the big room to introduce new products. It is up to them to advertise and encourage attendance.

May Tech Program

Chemical Waste Systems

Christopher Ziu

Christopher G. Ziu, PE, Vice President of Orion Enterprises has been involved in the plastic piping business for more than twenty seven years with experience in polypropylene, PVDF, PVC, CPVC, Polyethylene and PEX piping systems in a wide variety of applications. He has extensive experience in the specialized field of acid waste and acid neutralization, having worked for George Fisher Sloane in the early 1980s and with Orion Fittings since 1998. Another area of expertise is in the field of dual containment piping, where he has developed many of the industries' established thermoplastic systems and practices for designing systems. He is the author of McGraw-Hill's 900 page *Handbook of Double Containment Piping Systems*, published in 1995 and has authored numerous other articles and chapters on a variety of plastic piping topics. He is a voting member of the ASTM F17 and ASME B31.3 Committees. His educational background includes a bachelor's degree in Chemical Engineering and a Masters Degree in Business Administration, both from the University of Connecticut.

Program: Overview of neutralization methods; Sizing of neutralization tanks; Neutralization monitoring methods; Overview of piping materials and materials used in acid; Waste systems, including ASTM specifications; Review of material properties; Overview of joining systems; Requirements in fire rated areas (e.g. Return Air Plenums); Secondary containment and leak detection of tanks and piping.

May Vendor Program

Chemical Waste DWV Applications Review

Paul Riedinger

Paul Riedinger LEED AP is a Regional Technical Manager for Charlotte Pipe and Foundry. He has served in a variety of roles in technical service and sales of plumbing and piping products for twenty years and is a member of ASPE, ARCSA, PHCC and serves on the IAPMO Water Reuse Subcommittee (IAPMO Green Technical Committee). He is has a broad background in rainwater harvesting and EPA mandated Storm water applications.

Program: This class is a one hour technical review for plumbing engineers and architects involved in reviewing, designing or specifying plumbing systems by the industry experts in plumbing pipe and fittings, Charlotte Pipe and Foundry. The class will focus on a review of updated technologies/systems for chemical/acid waste systems for use in laboratories, chemical processing and hospital/ medical facilities. The class will compare and contrast material selection by reviewing product performance and applicable standards. Includes chemical waste piping technology updates on: traditional systems; plastic systems; joining methods; chemical resistance; temperature capabilities; physical properties; standards and codes; plenum applications; and projects.

April VP Technical Report

David Rhodes, CPR

Rainwater Harvesting...
What's the big deal?

Collecting rainwater is not a new idea. Historically, fresh water was not always easy to come by. Not everyone could live near a river, lake or stream. A well was often difficult if not impossible to construct and we all must have water to survive.

Throughout history, people have in one way or another caught and saved rainwater. In early Americana, rainwater was captured for use in crop irrigation, livestock watering, clothes washing, cleaning and bathing. When boiled, rainwater was used for drinking and cooking.

Barrels were placed under eaves and downspouts around the house. Troughs were placed near roofs of livestock barns and sheds. When rains came, the runoff from the roof filled them up. A pail, dipped into the barrel was used to bring the water to the point of use. You didn't have to walk to the creek, lake or river.

The next innovation in rainwater collection and use was the cistern. This was simply a large, covered masonry tank. Houses had a cistern built in the basement, (read root cellar), right under the kitchen counter. The few that I've seen were about 4ft in height and width and 6 – 8ft in length holding about 1000 gallons. Sometimes a cistern was incorporated into the foundation wall of the house. They were the original "DAY TANK". The downspouts fed the cistern, and a hand pump was installed on the kitchen sideboard directly above. To use the water one simply worked the pump and the water poured into a basin placed under the pump spout. What a labor savings! Water didn't have to be carried in from the rain barrels. Life was good.

What happened to the practice of rainwater collection and use?

One problem encountered was bacteria in the water. Bird droppings, especially in the cities, would wash in along with other organic and inorganic materials, such as soot and ash from fireplace chimneys. The water tasted bad and people got sick if the water wasn't thoroughly boiled. If it didn't rain, a cistern could dry up. In the winter, snowmelt didn't keep up with the demand for water. People began digging more fresh water wells and building sheds around them to help keep them from freezing in winter. Water wells were dug beneath homes. The problem being...people also dug pit toilets beneath their homes as well. Uuhhgg!

With the harnessing of steam power, we began pumping water great distances, and disinfecting with chlorine and other substances.

Here in Michigan, blessed with so much fresh water, industry built up around the lakes and rivers. In many parts of the state, you poke a well point 15 or 20 feet into the ground and you have a nearly unlimited supply of clean, pure, fresh water. In other areas you may have to go 40ft, 80ft, 100ft or more.

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President's Report

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Cassie Mudloff: cmudloff@mcadetroit.org
Mary Chapman: mchapman@mcadetroit.org

Your president,
John Nussbaum

A grateful *Thank You* to our April Meeting Sponsors:

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April VP Tech Report

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It wasn't a big deal. With pumps, tanks on towers and treatment equipment, even a community far inland from the Great Lakes could punch down some wells, or draw water from a river and supply the residents with "City Water".

Were we spoiled? Nope, not yet. The water was cheap and the quality was brought to a very high level. Water borne illness had largely become a thing of the past. We drew water out of the lakes and rivers or out of the ground. We treated surface water with enough poison to kill the bacteria without killing the consumer. We used water from the garden hose to wash our driveways instead of sweeping the dirt. We have the most lush lawns and flowers you could want. We irrigated the fields and crops were abundant.

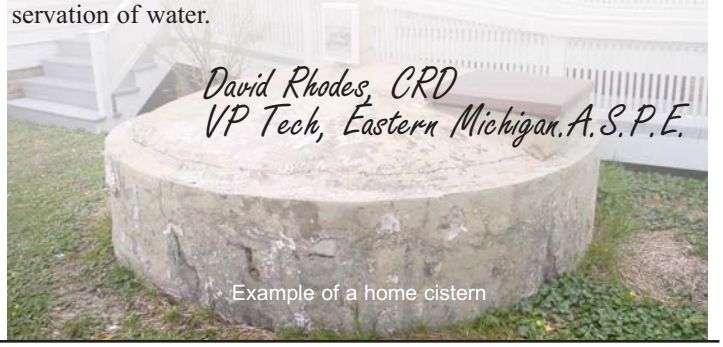
Again, life was good.

Soon we began running pipelines out to undeveloped areas where water was not available. We built expansive cities in deserts where, due to lack of water, none had ever existed. Large urban populations became dependant on reservoirs, water treatment plants and piping systems to carry water hundreds of miles. Now, during periods of drought, we have seen these reservoirs dry up, bringing water rationing, crop failures and local economic chaos. In today's world, collecting rainwater for non-potable use will soon become a must.

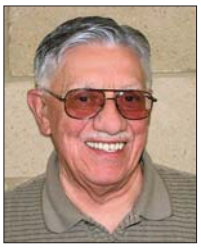
For the last 300 years or so, much of Europe has suffered from a lack of fresh potable water. Millions of people living in close quarters for centuries have fouled the ground water. Runoff from farms and overflow from inadequate municipal sewage treatment plants and industrial wastes had turned many European rivers and streams into toxic, disease laden open channel drains. In the early 1500's the River Thames in Jolly Old England was routed through the city specifically to wash away human waste. The Thames was known for the "Great Stink" of 1858 and is little better today.

Today we have come full circle. We have the technological ability, for a moderate price, to collect, store, and treat rainwater for domestic use at the household level. Gray water as well, (from showers, laves and laundries), can be collected, stored, filtered, treated and pumped back to our fixtures for reuse. With the cost of water treatment and delivery on the scale necessary to supply our cities, economically it will soon be imperative to capture gray water for reuse and harvest rainwater on a house-by-house, building-by-building basis. As the designers of these systems, we must work to bring the cost down to a practical level, which will enable everyone to benefit from the capture, reuse and conservation of water.

David Rhodes, CRD
VP Tech, Eastern Michigan A.S.P.E.


Example of a home cistern

Ed's Perspective
By Ed Hawley, CPD



April 16, 2010 ASPE Design Class
HARVESTING RAINWATER

According to pie charts for the year 2005 and various projections for 2030, public supply increases 10%, agriculture decreases 12%, commercial/industrial will stay at 9%, domestic self-supply gains 1%, and recreational loses 10%. These are computer numbers that are determined on the started conservation plans being used or in planning stages.

All you can see on any new construction of buildings, offices, schools, or large projects are various designs incorporating ponds or reservoirs storing and capturing rain water with plans to reuse some of it on each site. Water is not a major concern to the general public, because they just turn a faucet and a large volume of water comes out, not having any knowledge of what had to be done to make it so abundantly available. People, that live in the US southwest, have learned how precious water can be through the area's rationing programs like NO lawn watering, NO car washing, NO swimming pool refills, through most of the year. Every newspaper would devote a column on their front page listing the water level of Lake Dallas and any possible rain projections. Both Texas and California are just two of the states that live under those types of rules.

A personal experience I was involved in occurred when the plant engineer called me to come into his office and he explained the problem. It was the plant's total water and sanitary sewer bill when the City of Pontiac, Michigan, was hooked up to the City of Detroit's water system in the year 1962. The water and sanitary sewer bill was very high, water and sewer volume numbers were the same. Water evaporation and carry-away water on products was 5% to 10% of the total water volume. Upon study, a plan was developed to bring down the cost. Step one: separate the storm from the sanitary sewers. This was possible, because they became combined outside the plant building foundation walls. Step two: Install a new storm sewer main and connectors and reconnect all sanitary sewers branches to a new sanitary main for the separation for their tie in to the City mains. Step three: Get an agreement with the City on how we intended to meter the sanitary sewer. They agreed to allow the plant to build a pit and install a Parshall Flume metering unit, with allowance to visually inspect the operation of the metering data. After the complete installation, we discovered that we still had a flow of 437 gallons per minute of sanitary when the plant was shut down over a holiday. This was not acceptable. After a planned survey trip throughout the plant buildings, we were able to make conservation steps to reduce the volume on a shut down period to a 102 gallons per minute flow rate. We were able to initiate many other steps and controls to reduce that number to less than 50 gpm. I mentioned this case because cost was the main issue, however we noticed a large waste of water was happening, and by the way, the ROI on this total project was only 18 months.

We carried out steps similar to this plan throughout all facilities services, steam and condensate, compressed air, HVAC and all other services by metering their supply.

Back to the seminar topic...throughout the metro areas, storm water is being stored in large piping systems under the main parking areas of the project, for the main reasons that many of those municipalities have reached the limits of their sewer system, forcing all new construction to completely control the flow to the city systems sewers. Here we can investigate the storage of rain water reuse, lawn sprinkling and other usages, without too much cost or problems.

The building roof of Ford Motor Company's Rouge truck assembly in Dearborn, Michigan, is covered with green grass and other plants, and is doing very well as a model to follow. Its success is proof that a commitment to the water reuse program by the Chairman Edsel Ford, who required adding it to the new plant roof's project, is a viable option.

Let's take an overview on the LEED program that is used in the process of certifying any building project.

The rating system is as follows:

Energy & Atmosphere 27%
Indoor Environmental Quality.....23%
Sustainable Sites.....22%
Materials & Resources 20%
WATER EFFICIENCY.....8%

There are additional standards added with ASHRAE 90.1-2007, leading the way for a more accurate data process that will be used for evaluation of any building structure. Water reuse in the US is a large and growing practice. Nationally, more than 1.7 billion gallons per day are reused, growing an estimated 15% per year. With Florida and California leading the way, Texas, Arizona, Nevada, Georgia and the state of Washington are working hard on their programs.

Examples of water reuse include: The urban water reuses for irrigation of parks, highway medians, golf courses, etc.; commercial uses, such as vehicle washing, window washing, etc., fire protection, dust control, concrete production, toilet and urinal flushing; industrial reuse examples are for cooling water, boiler make-up water and industrial process water; agricultural reuse; environmental and recreational reuse that can create, restore, and/or enhance wetlands; recreational and aesthetic impoundments; for ground water recharge; augmentation of potable supplies. Reclaimed water is an increasingly important source of supply.

Currently, there are no federal regulations directly governing water reuse practices. Presently, 25 states have regulations regarding the use of reclaimed water. Another 16 states have guidelines or design standards. And 9 states have no regulations. Many samples of engineered rainwater collection systems were

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ASPE EMC April Meeting

A big THANK YOU to Cindy Zatto for providing photos.

Ed's Perspective

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illustrated during the April program, like the HighDro-Pure, by Highland Tank and others. Within the ground storage tanks sized from 15,000 to 50,000 gallons, that indicated all types of completed unit on skids sized for each type of requirement, packed units, control diagrams, valve and other guidelines for the sizing of the equipment. Here's a good sample that was illustrated:

Day Tank Sizing Guideline

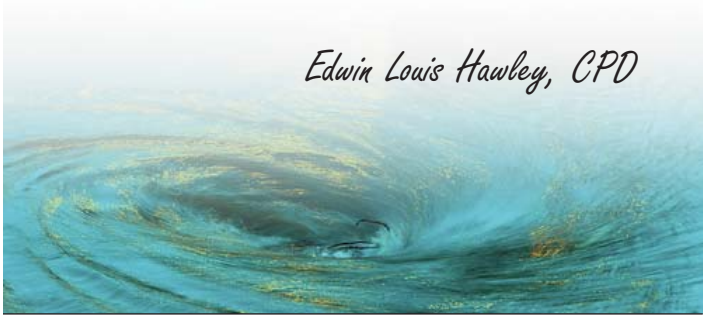
Flow rate for each type of fixture:
Lavatory……0.5 gpm
Water closet……1.6 gpf

Typical Fixture Usage per person:
Lavatory……3.0 gallons, Water closet…..5 gallons:

35 Occupants x 1.6 gpf, = 56 gallons x 5 Uses per day = 280 gallons per day x 5days = 1400 gallons per week

1400 gallons per week x 4.3 = 6020 gallons per month

Graywater collection systems, samples, equipment, packaged unit, controls, pumps, piping, etc. were illustrated with data completely with actual projects completed. April brought an excellent program with very good samples and presentations by our guest speakers, Michael Gauthier and David Carrier. Thank you, gentleman, for a good job done.



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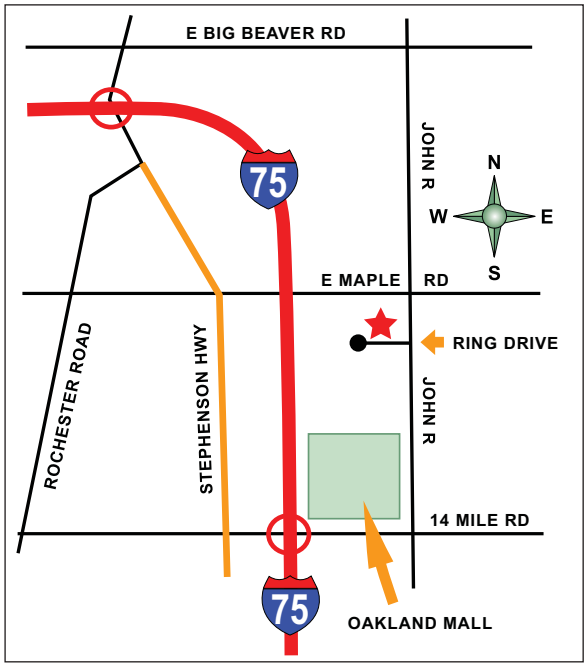
West of and off John R, north of 14 Mile Rd.



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