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Regional News
Established in 1988, Goodwater is a market leading, multi-disciplined Water Treatment Contractor, active throughout the Building Services Industry. From being the first and only supplier of UV units to achieve independently verified approval of the BS EN 14897 safety and testing standard to manufacturing a Chlorine Dioxide dosing system that is uniquely compliant with the requirements of WRAS and approved by Water Regulations Inspectors, Goodwater is truly at the forefront of modern water treatment technology.

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Welcome to the autumn edition of the SoPHE News, a publication written by public health engineers for public health engineers. This edition focuses on both regional and international developments providing technical articles and discusses key industry relevant to public health engineers to our growing membership.

The Society continues to grow and develop and our newsletter is a key factor in being able achieve this. Our newsletter is issued to all of our Members’ and to industry on a quarterly basis during the year. We within the Society are extremely proud of this production, our flagship newsletter highlights our continued professionalism within the building services sector, as a whole, as well as more importantly raises the profile of the Public Health Engineer within the Construction Industry.

The second half of 2014 has continued to see improvement in the overall economic output and the outlook continues to be very much more of a positive outlook with a great deal of optimism and confidence. More projects, particularly within London are given the ‘green light’ in terms of design and construction, which boosts the overall level of work within our industry. I do believe that this continued improvement in the UK’s economy can be sustained in the medium and long term outlooks, as our industry desperately needs sustained growth. Investment has again started and I hope that this is continued in order to train the next generation of Public Health Engineers, which is vital to our continued success within the industry which we serve.

Our CPD technical seminars, which are at the heart of our activities have continued to take place during the year, providing a variety of technical subjects to our members. We have a total of 8 technical presentations so far this year, which have taken place on behalf of the Society. These CPD events have also been carried out around the SoPHE Regions to all members. Once again a very special thanks to all of those who have contributed to these successful events. As part of our continued review within SoPHE, the new Technical Committee Structure has continued to be developed. This new structure has already reinforced the good work of the Society, as we have welcomed a host of new members that have volunteered to support its’ initiative. Further details can be found on the SoPHE website.

I can also confirm, at the time of this publication that final details are being prepared for our 11th Annual dinner, is due to be held on 6th November. I am sure that this event will build upon previous years’ successes and the next issue will provide a full report of the proceedings.

I strongly believe that our longstanding success of the Society is also based upon the good inter-organisational relationships that we have forged over the last 11 years that co-exist within the realm of the public health industry. I along with others have been very fortunate to have worked alongside some of these organisations over many years. Maintaining these important links, which already exist, as well as exploring new opportunities in sharing our knowledge with other professional institutions and organization will be maintained.

Thank you to all of those who have supported the Society, whose dedication, support and enthusiasm enable us to keep improving and moving forward with the ultimate aim of raising the profile of the ‘Public Health Engineer’.

Chris Northey
Chairman, SoPHE
SoPHE Autumn 2014

“Now…..where to run?”

Steve Tuckwell, Technical Advisor from WRAS explores issues relating supply pipework installation

There’s usually a right way and several wrong ways! Figure 1 highlights a supply pipe draped over one corner of the building before going into a doorway above head height. The caption states the requirement of the Water Supply (Water Fittings) Regulations!

External pipe depth and location

The water undertaker must be notified and give its permission in advance of installation for a pipe buried less than 750mm or more than 1350mm below ground. The permission may include conditions to protect shallow pipes from traffic damage or freezing. Chapter 3 of the WRAS Water Regulations Guide provides further information.

Outside a building, where water pipework and other services are buried beneath pavements or the carriageway, the National Joint Utilities Group (NJUG) recommendations on depth and separation of different services should be followed. To prevent permeation of plastic water pipes by leaking gas services, gas and water are laid at depths below ground of 600mm and 750mm respectively, and not less than 270mm apart horizontally. For details see Volume 1 of the NJUG ‘Guidelines on the Positioning and Colour Coding of Underground Utilities’ Apparatus’ (www.njug.org.uk/publications).

Pipes entering a building

The Water Regulations Guide sets out how to bring supply pipes into buildings below ground, to protect against physical damage and freezing. Pipes should be in a duct which is sealed at both ends to prevent gases or vermin entering the building. Where cold weather could affect it, the duct should be insulated. An insulated duct is required where the pipe enters at the correct depth but rises inside less than 750mm horizontally from the outside wall (Figure 2).

An insulated duct is also required for a pipe entering a building through an air void below a suspended floor (Figure 3).

Fig. 1: Water system laid outside a building to be not less than 750mm below ground unless with Water Supplier’s permission!

Fig. 2: Insulated duct for a vertical pipe rising less than 750mm from external wall

Fig. 3: Insulated duct for a vertical pipe rising through an air void beneath the floor

Accessibility of fittings

When designing a plumbing system the accessibility of water fittings should be considered. Methods for concealing pipes in walls and beneath floors within the building are frequent causes of dispute between developers and the water suppliers’ inspectors. Each side can have very different interpretations of what’s meant by Schedule 2 to the Water Fittings Regulations, which gives requirements for accessibility of fittings. Through WRAS, water suppliers have agreed interpretations of what’s acceptable.

Free from the WRAS website (www.wras.co.uk/consumers/resources/publications) the Information Note: “Schedule 2 paragraph 7 explained” gives diagrams and explanations of where a chase or duct can and cannot be used and of what is considered acceptable ‘concealment’ of pipes and fittings behind walls, in solid floors and beneath suspended floors. For example, refer to Figure 4.

Examples of acceptable finishes to conceal pipes are given, such as ceramic tiles, laminate wood finishes and carpet tiles. It isn’t acceptable to access fittings by having to remove walls or other structural supports. Neither should fittings be installed behind, or be obscured by, immovable objects such as large storage cisterns, fixed appliances or boilers.

WRAS offers a free Water Fittings Regulations technical advice service: email (info @wras.co.uk), telephone 0333 207 9030 or write to WRAS Ltd., Unit 13, Willow Road, Pen y Fan Industrial Estate, Oakdale, Crumlin, NP11 4EG.

Fig. 4: Pipe in duct with non-removable cover in internal leaf of external wall
The New York Tribune in 1918 reported that Philadelphia’s shipyard workers had adopted a war slogan “It’s not what you know, it’s who you know”.

What may have been penned as a catch phrase ninety plus years ago has proved to be a truism in life, even in today’s highly sophisticated technological age. I liken the phrase to networking “the exchange of information or services among individuals, groups, or institutions” (Webster’s collegiate dictionary) and the power and value of networking should never be understated.

From 2004 – 2011, I represented the interests of SoPHE, along with Tim Surridge, as the only two members in New Zealand at the time. In 2005, the CIBSE Auckland chapter invited us to join their steering committee. This provided us with the vehicle to present technical seminars giving exposure to Public Health (Hydraulic) engineering. Around 2009 our membership grew 100 % when Saul Everett and Jae Shim took our membership to a staggering four! Upon moving to Perth WA in 2012, I was invited to join the CIBSE committee, as an ambassador for SoPHE.

Although Paul Angus (CIBSE chairman NSW) and myself had linked up some year’s prior, we were effectively - two lone voices on this vast continent.

During my first 6 months in Perth I attended several technical evenings hosted by the AHSCA (the Association of Hydraulics Service Consultants Australia) who have recently celebrated their 40th anniversary. It didn’t take long to realize that they were our sister organization in Australasia.

I have been very fortunate to make the acquaintance of Andrew Cresswell, (Vice President) of the WA chapter of the AHSCA. We have had some very fruitful discussions revolving around where they see themselves within the building consulting services sector here in Australia. I was pleasantly surprised to learn that their ideals and goals are what I believe to be consistent with SoPHE’s. Andrew and I attended a technical presentation in Sydney hosted by ‘Viega’ back in May and met up with Paul Angus (CIBSE NSW Chairman) and Roger Chance (AHSCA NSW President). We used this opportunity to discuss the merits of our two groups networking together, as well as discuss CIBSE Guide G.

We have all realized that here lies a wonderful opportunity to combine our minds for the betterment of our discipline. Andrew on behalf of the AHSCA Perth chapter, is currently in discussions with CIBSE HQ, who will hopefully embrace their membership as individuals, but more importantly as a Public Health / Hydraulics interest group who can sit alongside SoPHE.

These are indeed exciting times, the AHSCA has over 500 members across Australia. There will be hurdles ahead, and we must be realistic, not all their members will see the benefit of joining CIBSE. We are hoping that people of influence, such as Andrew and Roger will ease their members towards a new course of events. The opportunities ahead are dizzying, here lies a vast pool of knowledge and experience, which will compliment our discipline globally. Knowledge and information will be exchanged and there will be a cross pollination of ideas. “It's not what you know, its who you know” …and ultimately, this can only strengthen
The HSE recently reviewed and revised the ACoP L8, Legionnaires’ disease, The control of legionella bacteria in water systems, which gives advice on the requirements of the Health and Safety at Work Act 1974 and The COSHH Regulations 2002.

The 4th edition of the ACoP sees the removal of Part 2, the technical guidance, now published separately as HSG 274.

HSG 274 has 3 parts:
- Part 1 Evaporative Cooling Systems
- Part 2 Hot and Cold Water Systems
- Part 3 Other Risk Systems

Control Measures for Hot and Cold Water Systems

Controlling water temperature is the traditional strategy for reducing the risk of legionella in water systems. Cold water systems should be maintained, where possible, at a temperature below 20 °C. Hot water should be stored at least at 60 °C and distributed so that a temperature of 50 °C is reached within one minute at the outlets.

In more complex water systems such as those in large office blocks or healthcare facilities, additional control measures are often used to manage the risk from legionella in water systems. The exact techniques may vary significantly in different water systems and operating conditions.

Water systems should be designed to be safe and without risks to health when used. Such hazards maybe of a physical, chemical or microbial nature such as the risks associated with colonisation and growth of legionella bacteria within the water system. The type of system installed depends on the size and configuration of the building and the needs of the occupants but the water systems should be designed, managed and maintained to comply with:

- Water system design considerations
- Water Treatment and Control Programmes
- Water Treatment Options (1) Chemical Biocides.
- Water Treatment Options (2) Non Chemical.

Water Treatment and Control Programmes

Incorporating additional water treatment techniques, can, when used correctly and if properly managed, be effective in the control of legionella in hot and cold water systems. However, the selection of a suitable system for the control of legionella is complex and will depend on a number of factors including; system design, operation, age, size, and water chemistry. There is no single water treatment control regime that is effective in every case, and each control method has both benefits and limitations.
Water Treatment Options (1) Chemical Biocides.
Chlorine dioxide has been shown to be effective at controlling both legionella and biofilm growth in water systems. There are a number of commercially available systems such as Goodwater’s WRAS compliant {Approval Number 1403330} Dioxychlor System that can automatically maintain a chlorine dioxide residual that is effective against legionella and biofilm. However it is not sufficient just to dose chlorine dioxide. Routine maintenance of both the dosing unit and the system on which it is installed is essential. HSG 274 Part 2 recommends the following:

- **Weekly**: Check the system operation and chemical stocks in the reservoir;
- **Monthly**: Test the treated water for both chlorine dioxide and total oxidant/ chlorite at an outlet close to the point of injection to verify the dosage rate and conversion yield;
- **Monthly**: Measure the concentration of chlorine dioxide at the sentinel taps. The concentration should be at least 0.1 mg/l chlorine dioxide. Adjust the system dosing to establish the required chlorine dioxide residual at the sentinel sample points.
- **Annually**: Test the chlorine dioxide and total oxidant/chlorite concentration at a representative selection of outlets throughout the distribution system. The concentration should be at least 0.1 mg/l chlorine dioxide.

Water Treatment Options (2) Non Chemical.
The use of disinfection chemicals such as chlorine dioxide provides a dispersive treatment in that they are effective throughout the water system downstream of the injection point. Where chemical treatment is inappropriate, UV irradiation can be used as an alternative. It is important that the treatment applied is suitable for the application and the use of Goodwater’s Tucana range, which is tested to BS EN 14897:2006 + A1:2007, as well as being fully WRAS approved to 14 bar, verify that a UV dose of 40mJ/cm² is achieved at the end of the lamp life, at the specified (varying) flow rates and UV transmissions.

This British Standard, fully entitled “Water conditioning equipment inside buildings – devices using mercury low-pressure ultraviolet radiators – Requirements for performance, safety and testing” provides a set of requirements – and a stringent protocol – for the testing of UV disinfection devices.

Units that have been tested to this British Standard can state operating flow rates and UV doses, based on differing UV transmissions, which have been independently verified. The units have also been proven to have performed safely under these conditions.

Where legionella bacteria have been detected in a water system, Point of Use filters can be used temporarily to prevent the discharge of planktonic legionella from the tap and shower outlets, until a permanent solution is developed. Where Point of Use filters are fitted, they should be renewed and replaced strictly according to the manufacturer’s recommendations.
As part of the ongoing development of the CIBSE Society of Public Health Engineers (SoPHE), Steve Vaughan, SoPHE Technical Committee, recently had the opportunity to attend the American Society of Plumbing Engineers (ASPE) 2014 convention

The convention is run bi-annually and this year it was held in Chicago, Illinois, USA. Known as “the windy city” and located on the west coast of Lake Michigan statistically it is not as windy as Milton or Boston as the reference to wind apparently relates to its “full of hot air politics” which dates back to the 1870’s.

ASPE was founded in 1964 and now have more than 6,000 members located in the United States, Canada, Asia, Mexico, South and Central America, the South Pacific, Australia, Europe, Africa, Caribbean and the Middle East. Their membership represents an extensive network of experienced engineers, designers, contractors, code officials, manufacturers who are interested in advancing their careers, their profession, and the industry. All very similar values to CIBSE SoPHE but in true US style just bigger! With ASPE celebrating it’ 50th anniversary this year the convention was planned to be the best ever.

During the “first timer” breakfast Steve was fortunate enough to initially meet Bill Hughes, ASPE President and heard first-hand how the ASPE 2012-2015 Strategic Blueprint has positively shaped the progress of their society in recent years. Objectives include reaching out to the contractor community, building stronger relationships with inspector and the regulatory community and how they are fostering relationships with international organisations. This was reassuring to hear and reflects many of the CIBSE & SoPHE initiatives which we have implemented over the years, such as the Contractors Working Group. I also spoke to several new ASPE members who praised the many ways they are able to enhance their skills and knowledge, particularly via online training and webinar opportunities which have been set up by ASPE in recent times.

The convention provided over 1000 seminars, however seminar that made the biggest impact was “Global Thinking and Local Action for Water” presented by Dr. Saburo Murakawa, Dr. Kanako Toyosada and Cheng-Li Cheng Proff. Dr. The first part of the presentation provided an overview of the activities of the Asia Saving Water Council (ASWC) which promotes a water-saving society in Asian countries.

The ASWC acts as a platform to exchange and share updated water efficiency information and technology. Currently, the main operations include academic activities from universities or researchers and projects supported by governments or enterprises to help developing countries like Vietnam.

In all, the visit provided a wonderful snapshot into the US plumbing design and installation industry. Attending the technical sessions and Expo provided an insight to gain a better understanding of ASPE’s structure, particularly with regard to their training and education programmes. Technically, it was apparent the UK is more advanced in certain areas, such as water conservation and reclaimed water systems, however possibly falls behind with regard to design code or guides, for example, high rise drainage design. Developing the links already made will undoubtedly assist with CIBSE SoPHE’s plan to engage with similar societies at an international level and ensure we continue to be at the forefront of Public Health Engineering Design

The trip has already provided beneficial links with ASPE and other associations such as IAPMO, in early 2015 it is planned to meet with ASPE for further discussions when some of their directors visit the UK. A big thank you must go to CIBSE for sponsoring the trip and to ASPE and all the members that Steve met in Chicago for making him feel so welcome at such a superb convention.
The 4th Northern dinner of the Society took place on 9th May 2014 at the Midland Hotel in Manchester.

This year’s proceedings started at 6.00 p.m. where industry colleagues and guests were able to catch up with one another and network before the official proceedings got underway.

Toastmaster for the evening, David Green, called the dinner to order at 6.30 p.m. where the 117 attendees from all aspects of the industry assembled in the stately surroundings of the Stanley Suite of the Hotel. Chris Northey, SoPHE Chairman then began his speech by first thanking everyone for attending the 4th SoPHE Northern dinner and started by introducing the audience to the honoured VIP guests for the evening:

Chris then went onto describe the existing work that the Society had been involved over the last year along with outlining the current plans for the future development of the Society. Membership, education and technical knowledge are still at the core of the Societies’ aims. Chris also highlighted the importance of working with like-minded organisations within the building services industry.

After dinner the Chairman’s guest speaker, Gary Newbon, entertained the guests present about his many experiences as a sports commentator. Gary’s sporting tales were very informative and very amusing which brought a great atmosphere to the evenings proceedings.

Gary closed his speech by giving thanks to the Chairman for inviting him and to all of the guests for listening to him. Mike Darvill, Industrial Associate Chairman, then rose to thank everyone for attending, which also included thanking the staff at CIBSE for all their efforts leading up to the evening. Mike also thanked all of the sponsors personally for supporting the event by naming each to the audience.

SoPHE would like to take this opportunity to thank all the sponsors for supporting the evening. Also everyone who attended the 4th spring dinner and by doing so supports its main aims and objectives of the Society. We are very privileged to have so many dedicated individuals who support the Society. In particular a great thank you is well deserved especially for all the great help received from Malcolm Atherton, Steve Ingle, Peter Hardiman, Alan Flight and Mike Darvill.

Due to the success of this event the 5th Northern Dinner will take place again in May 2015. Watch this space and we will keep you updated with progress and further details will follow nearer the time.

As always, we welcome suggestions / ideas with regards to a Guest Speaker for the evening, as well as any other ideas for example. Last year’s idea of naming the respective tables with various water related diseases was warmly welcomed by everyone who attended, an innovative idea from young up and coming Public Health Engineer Natalie Gasson.
SoPHE North West Update
By Malcolm Atherton

As always, our technical evenings here in Manchester are well received and well attended. Since our last update, we had an evening on Wednesday 16th July 2014 which was presented by Armstrong International (Kevin Graham) entitled “Digital Control of Domestic Water Systems”; there were a number of thought-provoking questions asked both during and after the presentation which had everyone talking about the subject matter afterwards.

This was then followed by another technical evening on Wednesday 17th September 2014 which, due to unforeseen circumstances, was not done by Delabie as per the original programme. Fortunately, I was able to enlist the services of Polypipe Civils (Rod Green) who did a presentation entitled “Engineered Water Management Systems”; an audience of 19 listened with interest as Rod explained the various methods of harvesting rainwater & the provision of attenuation – not necessarily located in the ground - together with the associated Regulations and Standards applicable.

Our next scheduled technical evening (at the time of writing) is Wednesday 19th November 2014 and will be presented by Sentinel Solutions (Chris Hayes & Dr. Graham Hancock); the presentation is entitled “Corrosion and Scale Control in Commercial Heating & Secondary Hot Water Systems”. The evening after that is Wednesday 21st January 2015 (yes, 2015 already; how time flies!!) in which Zip UK Ltd (Andy Colley, Training Manager) will do a presentation entitled “Energy Efficient Hydration in the workplace”. As always, these evenings are held at The Rain Bar on Great Bridgewater Street in Manchester where everyone & anyone is warmly welcome (members & non-members alike).

I am aware that there is (or was, by the time that this article is published!) of an evening presentation by BSRIA in London (9th October 2014); I am in the process of arranging this to take place here in Manchester in the near future as an extra technical evening. As soon as I have any more news on this, I shall let everyone know the details – date, time, etc.

As I’ve mentioned previously, Steve Ingle & myself are members of the committee for CIBSE NW and the primary topic of discussion at the moment is centred on the education of young students with regards to Building Services. This education topic is aimed not just at University level but also at college & secondary school students; if anyone has any ideas as to how we may be able to portray the whole subject of Building Services as an interesting but exciting one to these students, please get in touch. In addition, if there are any other issues to which you’d like us to raise on your behalf, specifically for CIBSE and maybe which is applicable for the North West of England please let either of us know either via email or the telephone; this is also applicable for SoPHE NW as well.

SoPHE FORTHCOMING TECHNICAL SEMINARS

For all regional seminars, keep up to date on the SoPHE website or LinkedIn page

SoPHE London presents:
15th January 2015 - Building Drainage Conference - Joint event co-hosted with CIPHE and IHEEM. Venue - The Royal Society London. An opportunity to review noise transmission in drainage systems, fire prevention, air flow and hygiene drainage systems with guest speakers from Heriot Watt University and The Netherlands.

SoPHE North West presents:
18th March 2015 - Thin walled Stainless Steel Pipe Systems, Sponsored by Aco Drainage. Venue - The Rain Bar, Manchester
According to Severn Trent, “Poo Power" is the way thing really be "Poo Power"? But could the next big these all roll off the tip of the tongue from a blue treatment, plus reclaiming heat from wastewater, with reusing rainwater, grey and black water shuttle to blast into orbit. More often than not, the or ideas you’d expect to find on the next space solutions, often relates to water saving initiatives. Keeping up to date with innovative design problems, Join the discussion on the SoPHE LinkedIn page.

NEW MEMBERS

Chris Northey, SoPHE Chairman is very pleased to inform our members that the Society has continued to see a rise in the overall Membership numbers. Our Membership now stands at 255 individual members. This is a real triumph for the Society and we have at last long reached the benchmark of exceeding 250 members. Setting our sights to see the Society grow to 300 members can be achieved, with the process towards achieving this already begun. A warm welcome to our newest members:

- James Gerard
- Jonathan
- David
- Oliver
- Konrad
- Robert Michael
- Anida
- Graham
- Benjamin James
- Simon

Brannigan
Young
Honey
Justice
Horszczaruk
Moore
Musialiska-Kusaj
Spurr
Goodfellow
Bignold
Member
Associate Member
Associate Member
Associate Member
Affiliate
Affiliate
Affiliate
Affiliate

TECHNICAL PUBLICATIONS

- 14/30295822 DC BS 8489-1 & 7. Fixed fire protection systems. Industrial and commercial watermist systems. Part 7. Published 21 August 2014. Status Current and draft for public comment

Around the Bend

By Paul Angus

Keeping up to date with innovative design solutions, often relates to water saving initiatives or ideas you’ed expect to find on the next space shuttle to blast into orbit. More often than not, the simplest of ideas are the best. We’re all familiar with reusing rainwater, grey and black water treatment, plus reclaiming heat from wastewater, these all roll off the tip of the tongue from a blue sky thinking perspective. But could the next big thing really be “Poo Power”?

According to Severn Trent, “Poo Power” is the way forward by generating a cost-saving renewable gas treating sewage from 2.5 million people. Studies prove that we, as designers, are all sustainable in reviewing how we can save energy and water wastage prior to the fixture and fittings, but what about afterwards? Once the water and heat energy we’ve cautiously considered in our calculations is flushed down the drain it’s well and truly forgotten. But how much energy is flowing away beneath out feet completely undetected? Scandinavian countries are already using sewers as a main energy source, as part of community heat pump networks to significant advantage.

Whilst you contemplate that thought, Severn Trent aren’t stopping there, in fact they have invested heavily in transforming food waste into energy! Innovative and life changing ideas that are the most effective, most often prove to be the simplest. Should SoPHE be doing more? Let us know your views on the LinkedIn group page.
THE STEERING COMMITTEE

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FEEDBACK

We would welcome any comments on this newsletter or contributions to future editions, in particular with regards to:

- Future events for consideration
- What should SoPHE be providing to our members
- Items or comments you think may be worth raising or informing your fellow members
- Technical articles from members, giving situations encountered and how they were overcome

Please email any comments, feedback or suggestions to Paul Angus who can be contacted by emailing: Paul.angus@erbas.com.au