cpsa
concrete pipeline systems association

pipelines
A newsletter from the concrete pipeline systems association

CPSA gets a new look

Welcome to the re-launched Pipelines newsletter from the CPSA.

In January 2006, CPSA joined the British Precast Concrete Federation as full members moving from the affiliated status they previously held.

As a result we have spent the first part of this year reviewing, updating and re-branding the association.

The new branding was developed to have visual impact, to be appropriate for the Association and to be user friendly. It has been applied across the Association with new stationery, business cards, new literature and website. We hope you like it as much as we do.

...and New Staff

As well as getting a facelift the CPSA now has a couple of new faces. Hafiz Elhag joins the CPSA as Technical Executive – Hafiz has been a familiar face around the office for a number of years; he has just successfully completed his PhD which was part funded by the Precast Flooring Federation, who share offices with CPSA. Annette Lee is also an addition to the team and has taken on the role of Marketing and PR for the Association. Martin Clarke has taken over the title of Association secretary from David Zanker. Richard Raymond of Hughes Concrete and Mark Flavell of CPM Group remain as Council Chairman and Technical Committee Chairman.

Literature Updates

NEW!

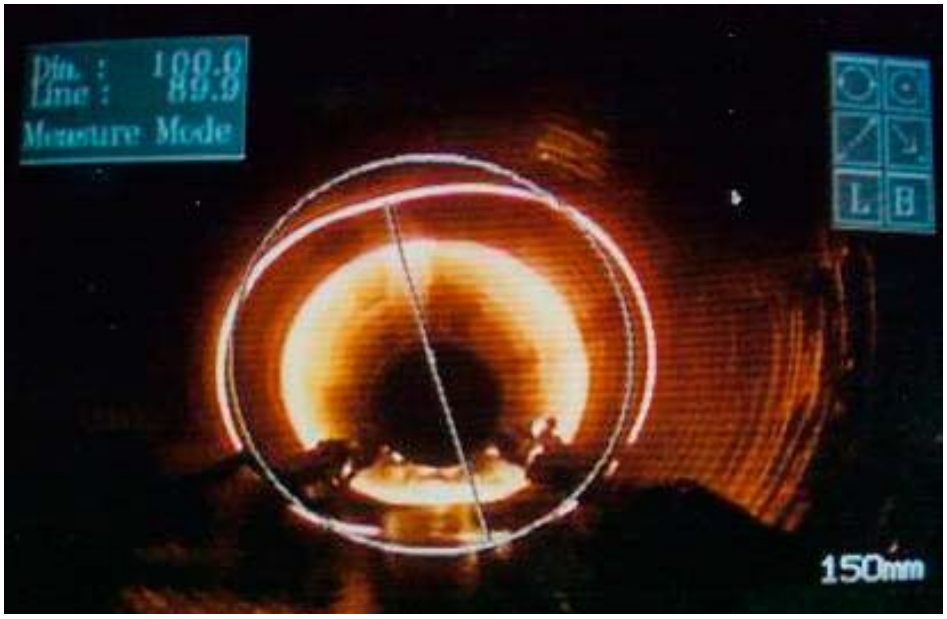
Offloading Documents

The CPSA has just released two new guides – the 'Guide for Offloading Deliveries from CPSA' members is a handy A5 reference document intended to be used by the person responsible for offloading vehicles that have carried precast drainage products from the producer. The guide clearly details the responsibilities prior to deliver, during transit and whilst off-loading. The second guide, 'Recommendations for Load Security of Concrete Drainage Products' is a 12 page A4 document giving clear and concise written and pictorial recommendations for loading a wide range of drainage products.

NEW!

New Technical Documents

All CPSA technical guides have been reviewed and updated together, and these will be available to download from the website shortly. The guide has been made smaller, easier to read and updated to include current UK manufacturing practices. It incorporates changes that have occurred since the introduction of the European Standards BS EN 1916:2002 for concrete pipes and fittings, and BS EN 1917:2002 for concrete manholes and inspection chambers along with the UK complementary standard BS5911. Although these requirements remain fundamentally the same, changes have been made to both terminology and test requirements, and the new technical guidelines reflect these amendments.



Advances in Pipeline Inspection

The CPAA (Concrete Pipeline Association of Australasia) has recently released some of the results of its case study of laser profiling of pipelines.

With the significant changes in CCTV over recent years the new technology has had a large impact on testing for deflection, ovality and alignment. Laser profiling is now used to capture an image of the pipe before software is used to measure the change in shape.

The laser ring can show areas of significant distortion, including crown flattening and vertical and horizontal deflection that is often difficult to observe and capture using standard video inspection alone. The technology is also able to pick up vertical and horizontal joint cracking and offsets.

The case study involves detailed video inspections randomly carried out on selected flexible pipelines at various sites in Adelaide. The inspections were conducted in 3 parts, firstly with a CCTV camera using high density lighting. In the second phase a laser profiling attachment was added to the camera, and the third phase was the detailed evaluation of the laser profiling data using software.

One of the tests involved a 900mm HDPE flexible pipe drainage system installed underneath a main suburban road (see picture above). The pipeline was less than 12 months old, yet the camera did not make 150 metres before the test was abandoned. It was found that the pipe had deflected at 5% or greater at an average of every 9 meters. This brought into question the longer term structural and hydraulic performance of the pipe.

The CPAA is also promoting reinforced concrete pipes as 100 year + assets. In over 90 years of production in Australasia there is no known catastrophic failure of a concrete pipe that has been attributed to a breakdown in durability. To support this they are showing a 50 year pipe recently taken from 50 years service in the Brisbane River that is as good as new and a 65 year old concrete pipe that shows no presence of carbonation despite being exposed to harsh weather conditions.

The American Concrete Pipe Association has also reported that it is moving more towards improved deflection testing; as a result at least 4 governing authorities have altered their specification for testing to a maximum of 5% deflection. Many of these have put in the requirement that if the pipe fails it is replaced at no cost to the authority.

For access to the CPAA's large technical library visit www.concpipe.asn.au

New Uses for Concrete Drainage Products

Musical Caissons

Earlier this year Milton Precast were asked to provide assistance for a very melodious project. Milton Precast were contacted by a contractor who wanted advice on how to install 2.4m caissons that needed to retain 500 – 750mm in the bottom. Upon questioning the contractor about the usage of the caissons it was revealed that the structure has been commissioned by an artist whose intention was to create a sound sculpture. The caissons were being installed into 6m of chalk in the middle of Kings Wood, Challock in Kent. The shape of the structure is that of a huge bottle which stores the water in the bottom. Since completed the sculpture will make the same sound as a half filled bottle top being blown over; in this case the wind will do the blowing.

If you have any more stories for the New Uses section, please contact Annette Lee at annette.lee@britishprecast.org

Fibre Optic Cables Join Sewer Systems

It appears that sewers are no longer just for sewerage. The FOCUS (Fibre Optical Underground Sewer) system from H20 is being heralded as a revolutionary new development. The systems allow organisations to set up their own communications systems via fibre optic cables laid through sewers. It is being promoted as a bespoke solution for separate secure network or those who require available cable for disaster discovery. Cable can be laid up to 80% faster than traditional methods as there is no need to dig up roads and pavements as every city and rural area has ready made ducts. The fact that the cable is much further below the surface also means that they have a greater degree of security, which is particularly useful in disaster recovery situations. In addition the cable has no restriction on band width meaning customers can upgrade their communication bandwidth without any additional costs. The impact resistance of concrete pipelines guarantee a damage-free environment for FOCUS.

Eco-points Weighting Study

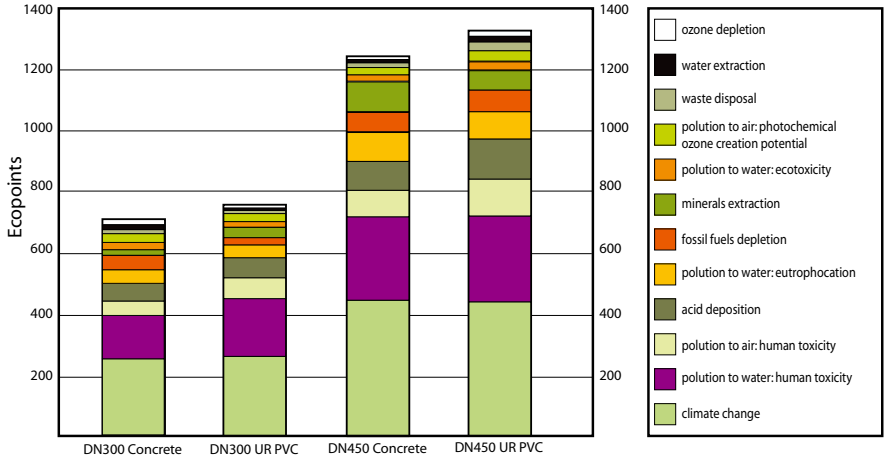
BRE was commissioned to carry out a comparative Eco-point weighting study for different sewer pipeline systems in the UK.

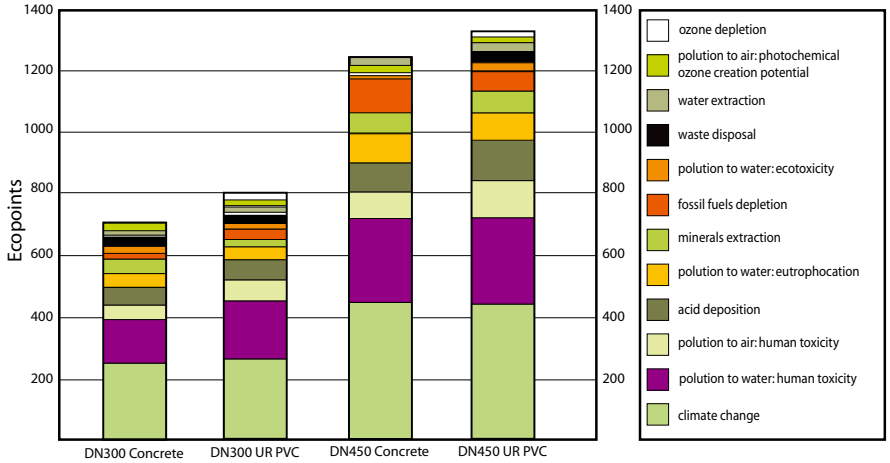
A 60 years life cycle was considered in the study. The results were positive for the industry and concrete pipeline systems scored favourably against other types of sewer pipe systems in many categories. The comparison included a number of pipeline systems clay, concrete, HDPE, SW PVC, TW PVC, UR PVC, Twin Wall PP, and Twin Wall and spirally wound HDPE pipe systems. Concrete pipes were found to have a lesser environmental impact than clay pipes in a number of environmental impact categories such as pollution to water, energy consumption and fossil fuel depletion. Concrete pipes also outperformed Twin Wall and Spirally Wound HPDE in several categories (including photochemical ozone creation potential, energy consumption, water extraction and eutrophication).

However, the Eco-points gap between concrete pipes and PVC pipes was the most significant (graph alongside). For some categories, the final eco-point score for concrete pipes was 30% to 40% better.

The results come as no surprise to CPSA members. An earlier Life Cycle Assessment study, conducted by the Dutch consultancy INTRON in 2001, revealed a massive gap between concrete and other types of plastic pipeline systems. Concrete pipes were found to have the least environmental impacts in seven impact categories, and the second least impact in another three.

It is expected that the gap between concrete and other types of plastic-based pipeline systems will increase considerably as the characterisation system used by BRE is expected to change and a methodology similar to the one used in Europe will be employed. The Eco-point weighting system will also be updated and some of the overrated impact categories such as Mineral Extraction and Waste Disposal will be revised.





COMPETITOR UPDATES

PVC No Longer Specified

The National Precast Concrete Association of America (NCPA) in partnership with the Illinois Precast Concrete Association (ICPA) has reported success in getting the state of Illinois to remove PVC from storm water specifications. The state committee agreed that PVC was inappropriate for manholes, catch-basins and inlet structures.

The ICPA had lobbied the state revealing PVC's minimal track record and questioning whether the material was really fit for the job. The committee promptly removed PVC from it's standard specification. PVC had originally been specified as an alternative to precast concrete following on from a state advisory committee's task force recommendation.

The task force has been set up to review the storm water requirements of the area.

As well as expressing concerns over PVC's quality and design, the letter included details of concrete's proven track record, the large number of manufacturers and ease of supply, and the flexibility of concrete pipes in adapting to site changes.

CONFERENCES AND SEMINARS

Sewers for Adoption Workshops

Events to launch the Sewers for Adoption 6th edition took place at 4 venues across the country from the 7th to the 15th March. CPSA were present at all 4 dates, complete with stand and literature and shared the exhibition space with sister organisation Interpave.

The event attracted over 400 delegates with each day being sold out.

The stands were manned by a different member of CPSA at each event and were well visited. It proved to be a useful networking experience.

New stands are being worked on for future exhibitions.

International Relations

The CPSA is a member of a network of concrete pipe associations around the world.

In Europe the CPSA is a member of the concrete pipe commission of the European Precast federation, BIBM. All BIBM member countries are represented. Germany, Spain and the Netherlands all have dedicated concrete pipe websites.

Europe

UK: www.concretepipes.co.uk

Germany: www.fbsrohre.de

Spain: www.atha.es

Netherlands: www.betonleeft.nl

Outside of Europe the main associations are:

USA

American Concrete Pipe Association: www.concrete-pipe.org

American Concrete Pressure Pipe Association: www.acppa.org

ACPA e.Newscast: www.acpanewscast.com

National Precast Concrete Association: www.precast.org

In addition many American states have their own pipe associations:

California Precast Concrete Pipe Association: www.cpcpa.com

Georgia Concrete and Products Association: www.gcpa.org

Illinois CPA: www.il-concretepipe.org

Indiana, Kentucky & Ohio CPA: www.ikocpa.com

New Jersey CPA: www.njconcretepipe.com

Michigan CPA: www.concretepipe-mi.org

Minnesota CPA: www.mnconcpipe.org

Missouri & Kansas CPA: www.mokanconcretepipe.org

Mountain States CPA: www.msconcretepipe.org

Pennsylvania CPA: www.paconcretepipe.com

Precast Association of Virginia: www.gopcav.com

Wisconsin CPA: www.wcpa.com

Canada

province sites:

Canadian Concrete Pipe Association: www.ccpa.com

Additional province sites:

Ontario CPA: www.ocpa.com

Quebec CPA Tubecon: www.tubecon.qc.ca

Worldwide

Australasia CPAA: www.concpipe.asn.au

South African Concrete Manufacturers Association-Pipes: www.cmapipes.co.za

With each association conducting their own research into different aspects of concrete pipeline systems and competitor materials this network is of growing importance. Much of the information is relevant to our market, and with British Standards being among the best (if not the best!) in the world you can ensure that any quality claims made will be matched or exceeded by our members products.

To access any of the sites mentioned above visit the useful links page on the CPSA website at: www.concretepipes.co.uk

A Shell Step Summer

From the title this sounds like a stroll along the beach, but this could not be further from the truth. Shell Step is a summer programme sponsored by Shell placing University undergraduates in work experience for the summer months. The CPSA has this year employed one of these hard working students, Mamta Chudasama, for a 12 week placement. Mamta has been working on helping the CPSA put together databases of sector contacts as well as assisting Hafiz Elhag the CPSA Technical Executive in his current research. Mamta has also acted as our main contact for the new look website updates and has had a hand in putting together our new corporate brochure, along with another of the Shell step students in the office, Rakhee Karia.

On top of all the work she has been doing for the CPSA she has had to write a full report on her placement and deliver a presentation in competition with other students placed in the Leicestershire area. Mamta impressed the judges in the first round and went on to present later the same day in the local finals. Unfortunately she was pipped at the post but she has still been a winner for CPSA as she now returns to Nottingham University.

CPD Presentation Now Available

The CPSA are offering a presentation to Water Companies, Highway Authorities, Consulting Engineers, Contractors and Developers on how to reduce the risks when specifying new sewerage and drainage schemes. The presentation details the benefits and advantages of using precast concrete pipeline systems, as well as providing a comparison with alternative materials. The presentation covers a brief history of concrete pipes from 1875 to the present day and then goes into more detail on the stringent European and British Standards to which our members' products are made and the variety of tests that are conducted to ensure product quality of pipes and manholes leave the factory.

In addition, findings of the first full survey on the lifecycle of UK Sewer systems are presented, detailing the sustainability of precast concrete pipes and other pipe materials.

Other information includes the history of plastic pipes, pipe deformation and advancements in its detection, pipe jetting and restrictions on sewers for adoption. CPD certificates are available from the CPSA.

For more information or to request a presentation please contact Annette Lee on 0116 2229841 or via annette.lee@britishprecast.org

Institution of Civil Engineers

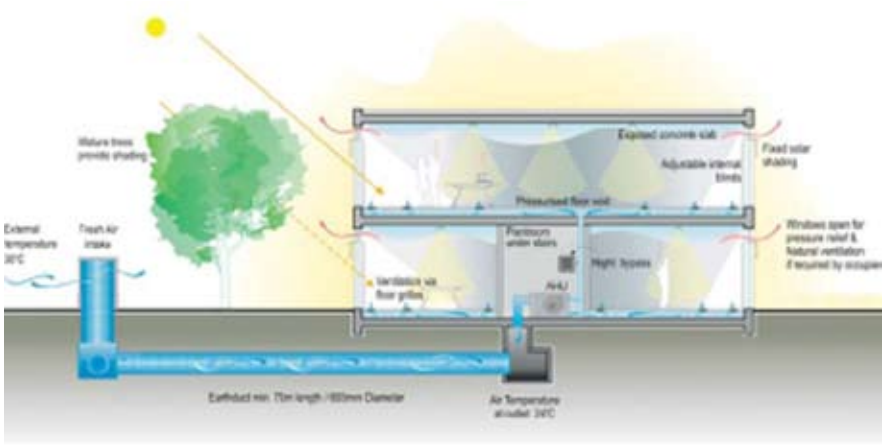
CPSA Sponsors ICE Conference

The CPSA is pleased to announce that they will be co-sponsoring 'The Challenge of Delivering Global Water Infrastructure' conference organised by the Institute of Civil Engineers and British Water.

The conference will be taking place at the International Coffee Organisation in London on the 22nd November 2006.

The conference will discuss funding challenges and while the agenda is currently still in the draft stages more information will be available shortly via the CPSA website - www.concretepipes.co.uk.

There is also a link to the ICE website which details other conferences which may be of interest to members and newsletter readers.



Butterfield Business Village, Luton

On the surface Butterfield Business Village looks like just another development, however, it has a unique environmental selling point – it is the first UK commercial venture to include an earth duct ventilation system. This means the usual air-conditioning systems can be ditched.

Earth ducts work by drawing the air into the building using long subterranean pipes that cool the air as it passes through them. This method is being promoted as more effective than conventional natural ventilation.

Patrick Bellew of Atelier Ten says natural ventilation has not lived up to its promises so far. "Natural ventilation gives you a lot of problems, people find there is not enough exposed surface area in the room to cool it, so it tends to overheat on hot days. After a couple of years people start to fit air-con systems, which is the worst thing you can do." The solution to these problems is to build the heat sink remotely thereby effectively increasing the area of the buildings. Atelier Ten has taken this approach on previous projects including Doncasters' Earth Centre, Kew Gardens Alpine House, and a commercial development in Melbourne, Australia. These all incorporated a subterranean labyrinth full of rippled concrete walls that allow the cool air to circulate.

Butterfield, however, has developed this system even further, with the systems being wonderfully simple. Concrete sewer pipes are used to line long underground ducts; these are 600mm in diameter and are buried 1.2m below the surface. At Butterfield these are 80m long with one end terminating in the building and the other well away from it. Air is pulled through the pipes into the building using a conventional air handling unit. The cool air is circulated around the building on hot days through a conventional displacement ventilation system. If the outside temperature is 28˚C the earth duct can cool it to 22˚C. Altogether 13 earth ducts will feed the 5 buildings that make up the first stage of the development.

Not only can the system be used in the summer months for cooling, it can also preheat incoming air during the colder months using the earths natural heat. If the air outside is 2˚C then it comes into the building at a significantly higher 5˚C, which reduces the heating load. This works out that the system uses half the energy of conventionally naturally ventilated buildings. It is also cheaper than air conditioning.

The build is striving to achieve a BREEAM "Excellent" standard for the buildings as well as an "A" rating under the new European Energy Performance of Buildings Directive.

If the system proves itself this could become just another everyday feature of out of town office developments.

This is a new exciting use for concrete pipelines, one that could really take off as summer temperatures rise and non-energy intensive cooling methods are sought exploiting concrete's thermal mass.

If you would like further information on any aspects of concrete pipes we would be happy to talk to you. If you would like a hard copy of the CPSA handbook "The Comprehensive Guide to Precast Concrete Drainage Systems" please contact us.

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