

The Digital Pipe Digest

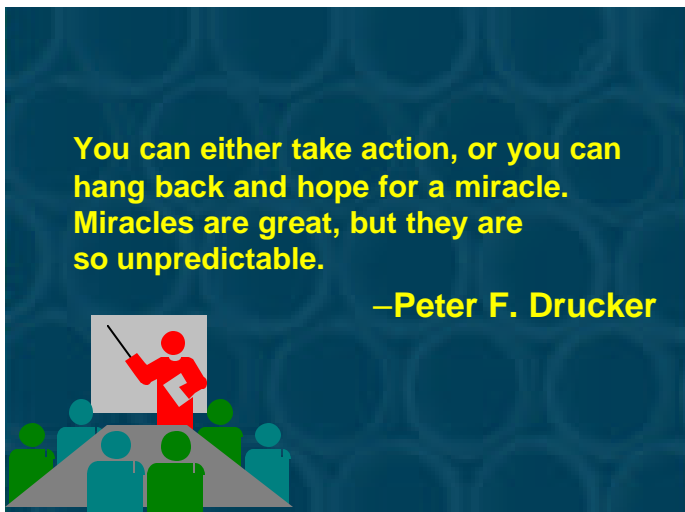


Canadian Concrete Pipe Association
Association canadienne des fabricants de tuyaux de béton

Editor: A. Grant Lee, MCIP, RPP, FCInst.M November 2004

American Concrete Pipe Association 2004 Fall SCS was a packed house

One of the best things that could be said about this year's Short Course School is that you and your company would benefit significantly if you were to plan now to attend the 2005 school. Nowhere can you participate in an intense two-day program of knowledge-sharing and learning of the like offered by the ACPA and its members.



Approximately 250 people from industry and governments attended the school. Five delegates of INFRASET (ACPA International Producer Member) made the trip from South Africa. Many Canadians were also present representing producers and suppliers from coast to coast. American delegates from several states made long treks to "Sin City" Las Vegas Nevada to network, listen, learn, challenge and debate. Place a marker on your 2005 calendar over the second week of November, as that will be close enough to hit

the date of next year's meeting when it is confirmed.

If you weren't able to attend, you may be able to borrow the proceedings from someone who did. Grant Lee can provide a CD for members of the Canadian Concrete Pipe Association upon request.

Attendees were treated to in-depth information about competitive products and the standards and legislation that have a great impact on their application as culverts and sewers. University professors presented research on life cycle costs, durability, and service life of pipe and conduit materials. Delegates left the sessions with good information that can be used in marketing and sales.

Representatives of member companies made their marks on this year's school. Over a few short years, these folk have risen quickly to become industry champions. They have honed their core knowledge base and presentation skills so that audiences show up to learn. The technology that is available to us today for presenting information makes full use of integrating sound, PowerPoint decks and video. Presentations were often sprinkled with exciting moments of entertainment in the context of serious business.

Topics covered included HDPE strengths and weaknesses, HDPE service life, homeland security, business relationships, reinforced concrete pipe quality, DASH software, aluminized metal pipe, fiberglass reinforced polymer pipe, reinforced concrete pipe production, reinforced concrete specifications, box culverts and retention boxes, E' and soil strength in flexible pipe installations, industry research, concrete pipe

for sanitary sewers, fill height tables, costs of culvert failures, concrete pipe advantages over alternate pipe products, durability issues of concrete, and life cycle analysis.

The two-day event was marked by a candid panel discussion that included a contractor, consulting engineers, DOT representative, and a state senator. For more than two hours a free-range of questions and answers enlightened the room full of delegates and panelists alike. The information exchanged was priceless for those who listened well.

Ann Couwenhoven of Rinker Materials/Hydro Conduit and her team of volunteers and ACPA staff worked for the best part of a year to make the short course school happen. She and her team were rewarded with a most successful event.

ACPA Production Short Course School looming on the horizon

February 13 to 16 2005 in Indianapolis, Indiana is the time, and Holiday Inn Crowne Plaza is the place to gain knowledge in the area of concrete pipe production. The production school gives players the opportunity to learn from the industry's version of card sharks by providing the most experienced and knowledgeable instructors in North America. Included in the lineup of premier presenters is Canada's Mel C. Marshall of Mel C. Marshall Industrial Consultants, Inc. Mel is scheduled to speak on the topics of reinforcing, wire drawing, and curing.



Attendees will be trained in the areas of production, leadership, quality, and safety. The school runs at the conclusion of the 2005 MCPX show. Speakers will provide insight and knowledge about quality, employee safety, workplace efficiencies, management tools, employee training, and advanced production techniques.

The program features plant tours, concurrent sessions, a welcome reception, machinery clinics, and the ACPA's annual Safety Awards Luncheon and round table discussions.

ACPA members can register online at www.concrete-pipe.org.

Exhibiting concrete pipe just got easier

At your next trade show, consider borrowing or purchasing one of the scale model concrete pipe displays now available from the ACPA. These models are ¼ scales of 48-inch B wall pipe with a single offset spigot. Requested by State Associations over a year ago, the models are effective props for trade shows. The model may also be an attractive display for offices, or used as an educational tool.



Contact Karen Hunter at the ACPA, khunter@concrete-pipe.org, or 972.506.7216 for information.

CCPA/ACTB and OCPA Annual Meeting sneak preview

As the temperature drops, it is easy to begin thinking about this year's AGM in Niagara-on-the-Lake. The OCPA has mailed a program to all members of the OCPA and CCPA. There are some key dates to observe.

The AGM is scheduled for Friday February 18 with plans for technical presentations and debate on February 19, 2005. The OCPA has blocked rooms at the Pillar and Post from February 16 to 19 for the convenience of members who may wish to spend some time in the region.

Registration is required for the meetings by sending a completed form to the OCPA (fax 905-631-1905). The registration fee is \$250.00 for members and \$150.00 for guests. There is no charge for children.

Registration at the Pillar and Post Inn is the responsibility of each member. There is a price range for rooms at the Inn. Contact the Pillar and Post at 905-468-2123, 1-888-669-5566, or e.kerr@vintageinns.com. When



contacting the Inn, you will be asked for a reference code. It is OCPA Group. **You must book with the Pillar and Post by December 18, 2004 to receive the Group rate.**

The Annual General Meeting is open to members of the Canadian Concrete Pipe Association and Ontario Concrete Pipe Association and their guests only.

A formal invitation has been offered to a key personality who has been invited to talk

about the Technology Roadmap and other initiatives underway at Infrastructure Canada. We hope to provide more details in the next *Digital Pipe Digest*. On Saturday, the CCPA has received offers from members to present information on the new standard for the construction of sewers and watermains in Québec, and a repeat of a presentation by Hamilton Kent on gaskets. There has been suggestions that discussion take place on promotion, national and regional issues, market erosion, concrete pipe liners, and also data collection to tie into true cost of culvert failures that is in progress through ACPA members.

For information and offers to present at the Saturday session, contact Grant lee at info@ccpa.com or Paul Smeltzer at paul.smeltzer@ocpa.com.



Concrete pipe and box applications and industry developments in print

Concrete pipe in North America has a long history of dependability and performance. The quality of product and performance standards have taken a giant leap forward over the past quarter century, making concrete a preferred material for many traditional sanitary and storm sewer applications. Precast reinforced concrete pipe and boxes are finding niche markets where never before envisioned such as ventilation tubing (Earth Rangers Centre and Niagara Falls Butterfly Conservatory), buried utility galleries, groynes for current control and fish habitat in harbours, animal and pedestrian crossings of rail lines and highways,

stormwater storage and retention chambers, small bridge structures, jacking and tunneling applications, and marine outfalls. New applications are limited only by the imagination of infrastructure designers.



The concrete pipe industry and its associations regularly publish applications of interest in many trade and professional publications throughout Canada and the United States. Many published articles become archived on various Web sites for access via the Internet. Following is a compendium and summary of some of the articles published over the past eleven months.

Concrete Pipe News

Flooding Solved and Beach Quality Improved with RCP

Flooding within the 189-acre Yaupon Drive Drainage Basin of Myrtle Beach was solved with a twin 60-inch diameter reinforced concrete pipe storm sewer. The project was designed to meet the City's goal to reduce the number of pipes on the beach, maintain high water quality standards, and provide a reliable storm water drainage system to alleviate flooding.

Pipe Buoyancy Design Challenge Overcome With Concrete Pipe

Due to its strength and 100-year service life, reinforced concrete pipe was specified for a new 35,000 square foot municipal complex. Since the community is characterized with many canals and a low laying landscape, it was important that floatation issues were carefully addressed when selecting the pipe material for overall performance.

Storm Water Detention Park Relies on Concrete Box Culvert

West Valley City, Utah established a Storm Water Utility to create a natural storm water park that pretreats storm water, helps educate young people, and meets the goals related to EPA requirements. An 11-foot x 4-foot reinforced precast box culvert was used to convey nearly 400 cfs to the detention ponds of the storm water park.

Lined Reinforced Concrete Pipe a First for London Ontario

A 675 mm (27-inch) diameter concrete sanitary sewer commissioned in the late 1960s was replaced with a specially designed 590 meter (1,935 foot) precast concrete system to improve the environment of a London Ontario neighborhood and solve major structural problems caused by sulfuric acid (H₂SO₄).

Calgary Uses Specially-Designed Precast Concrete Boxes for Stormwater Duct

Construction of the *Rundle Underground Storage Duct* in Calgary, Alberta consisted of a two-cell precast concrete box system (each box unit measuring 2400 mm wide x 3000 mm high), 550 meters long with cover up to 5.65 meters. The boxes were designed using BoxCar to support an American 5299 fifty-ton crane used to place the two parallel lines of box units.

Lesson Learned About Making the Right Choice in Culvert Material

Residents of the River's Edge Street Subdivision in Jupiter Florida banded together to replace a failing high density polyethylene (HDPE) pipe installation with a reinforced concrete box culvert. Residents had taken a contractor's advice to install HDPE pipe instead of concrete because of a lower initial cost of the culvert material.

A Study Into The Economic Costs of Culvert Failures

Actual replacement cost and the cost of roadway user delays due to road closures and detours are often not considered in the Life Cycle Cost Analysis (LCCA). Since the Nation's highway infrastructure is in need of billions of dollars to simply maintain current assets, it is very important to include these costs in any LCCA. Supported by a literature review and survey, a study team developed a new equation for LCCA that includes total cost of installation.

Concrete Pipe is a Great Choice for Sanitary Sewers – Based on Product and Material Performance

Concrete pipe has a history of excellent performance as a durable product for sanitary sewer pipelines and storm water conveyance. The challenge is to understand the environmental and service conditions that a sanitary sewer would be subjected to before it is designed and specified.

RCP drains provide immediate health, safety, and economic benefits, by Robin Woodbury, Premarc Corporation, Durand, MI. (RCP system designed to intercept existing combined flows from a 60-inch and 72-inch line that previously discharged directly into a retention treatment facility without benefit of pre-treatment.)

RCP Receives Rave Reviews, by Ron Almquist, North Dakota Concrete Products, Bismark ND. (A 1.17 - mile segment of South Broadway [a major traffic artery in Minot, North Dakota] was reconstructed using RCP for storm sewers.)

Choice of Major Culvert Material Based On Proven Performance, by Ryan Finley, Lafarge Canada, Inc., Calgary AB. (Use of precast concrete box units under the TransCanada Highway was based on the proven performance of concrete and the expected service life of precast reinforced concrete box culverts.)

Precast concrete pipe and box sections installed close to home, by Dale Pruden, Hanson Pipe & Products, Grand Prairie, TX (1,500 feet of Class III RCP of various diameters and approximately 1,000 feet of precast reinforced concrete box sections installed within view of ACPA headquarters.)

Institute of Religion campus built on rock-Solid Infrastructure by Phil Gale, Geneva Pipe Company, Orem, UT. (Specification for a stormwater detention system [originally specified as a 72-inch diameter concrete pipe] was changed to four rows of box sections (13-feet x 6-feet x 8-feet) approximately 120 feet in length.)

Concrete Pipe Journal

Engineers Design Unique Stormwater Duct Under Urban Section of TransCanada Highway

Construction of the *Rundle Underground Storage Duct* in Calgary, Alberta consisted of a two-cell

precast concrete box system (each box unit measuring 2400 mm wide x 3000 mm high), 550 meters long with cover up to 5.65 meters. The boxes were designed using BoxCar to support an American 5299 fifty-ton crane used to place the two parallel lines of box units.

MTO Replaces Failing Culvert on Highway 403

Closure of Highway 403 westbound on April 26 (west of the Princeton interchange), was necessary to replace a failing corrugated steel pipe (CSP) culvert with reinforced concrete pipe. The CSP culvert was the second to fail at this location in less than one year. The replacement took place in a 12-hour period during the night.



Concrete pipe debuts under Highway 401 medians, by Mark Eaton, Con Cast Pipe, Guelph, ON. (New special provisions in the Ministry of Transportation contracts for major highways address the quality standards for the acceptance of drainage product specifications. Highway 401 between Regional Road 97 and Homer Watson Boulevard in the

Regional Municipality of Waterloo was the first contract that specified reinforced concrete pipe for median drainage.)

Environmental Science & Engineering Magazine

Engineers Design Unique Stormwater Duct Under Urban Section of TransCanada Highway

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Recycled concrete pipe services fuel depot, by Hanson Pipe & Products Canada Inc., Cambridge, ON. (Four pieces of 450 mm RCP removed, cleaned and re-installed to accommodate an oil/sediment separator at fuel site.)

Research suggests conservative design of concrete box culverts by Paul Smeltzer, P.Eng., and Evan Bentz, Ph.D. (Article discusses University of Toronto research expected to have a significant impact on the cost of buried infrastructure and the use of resources for producing precast concrete boxes. The research will have a profound impact on design methodology and principles used in industry and academia for concrete structures).

Daily Commercial News and Construction Record, March 12, 2004 “Concrete” Special
A model for product quality programs, by Paul Smeltzer, OCPA.

(The Plant Prequalification Program for precast Concrete Drainage Products is discussed. The product quality testing program now includes not only circular pipe, but also elliptical pipe, maintenance holes, catch basins, valve chambers, box units, three-sided boxes and headwalls.)

Concrete pipe association wants to see more money invested in underground infrastructure, by Mark Sabine, OCPA.

(A point is made about the continued under funding of infrastructure by governments, and a call for proper consideration of design life of projects.)

Study provides information on concrete box culverts, by Paul Smeltzer, OCPA.

University of Toronto research on box culverts reported that develops an understanding of the shear resisting mechanisms for box structures. The crack development, reinforcement strains, and specimen deformation were compared to the results of extensive nonlinear finite element analysis using the computer modeling techniques developed at the University of Toronto. Discussion presented in the report called, “Shear Behaviour of Concrete Box Culverts: A Preliminary Study” by R.A. Yee, E.C. Bentz, and M.P. Collins, identifies areas of weakness and lack of clarity in the current codes governing box culvert design.

The Ontario Technologist

Drain gain – advances in sewer pipe design improve flow and safety

The benching in the base of the structure that maintains the flow properties and performance, including full flow and surcharged conditions is one of the critical components of modern-day maintenance hole structures. Concrete pipe producers in Ontario are raising the performance level of benching, and calling for new standards to

accommodate advancements in technology and field conditions for contractors and maintenance crews.

Engineering News Record

Gibraltar’s municipal complex built for the ages with concrete pipe

A short article published about the use of concrete pipe in a wetland area south of Detroit. Pipe floatation was a design consideration in the specification of concrete pipe.

Roads and Bridges Magazine

Concrete pipe – a product for present and future generations

An article that generally outlines the argument for the use of concrete drainage products in today’s economy.

Official opening of Earth Rangers Centre held October 7

Representatives of the Ontario Concrete Pipe Association and Canadian Concrete Pipe Association were



www.earthrangers.ca

present at the official opening of the Earth Rangers Centre in Woodbridge on October 7.

The centre, built almost entirely of concrete uses at least 61% less energy than a similar building designed to the Model National Energy Code of Canada and sets a new standard for sustainable design in Canada.

Concrete Pipe Industry Billboard

2004

International NO-DIG 2004

Hamburg, Germany
November 15 to 17

Construct Canada

Toronto, Ontario
December 1 to 3

Canadian Public Works Expo

Mississauga, Ontario
December 1 to 2

2005

TRB 84th Annual Meeting

Washington, DC
January 11 to 15

World of Concrete 2005

Las Vegas, Nevada
January 18 to 21

ACPA Production Short Course School/MCPX

Indianapolis, Indiana
February 9 to 11

NUCA 2005

Orlando, Florida
February 8 to 12

CCPA/OCPA Annual General Meetings

Niagara-on-the-Lake, Ontario
February 18, 19

Ontario Good Roads Association Conference

Toronto, Ontario
February 20 to 23

97th Annual Meeting of the ACPA

Las Vegas, Nevada
March 13 to 16

CONEXPO-CON/AGG

Las Vegas, Nevada
March 15 to 19

Water Environment Association of Ontario

Huntsville, Ontario
April 17 to 19

**Ontario Water Works Association Conference
and Trade Show**

Ottawa, Ontario
May 8 to 11

Ontario Environmental Tradeshow

Toronto, Ontario
May 11 to 12

**Canadian Society for Civil Engineering Annual
Conference**

Toronto, Ontario
June 2 to 4

**Federation of Canadian Municipalities 66th
AGM and Municipal Expo**

St. John's, Newfoundland
June 3 to 6

ACPA CPU 201 – Concrete Pipe University

Irving, Texas
TBA

AWWA Conference & Exposition

San Francisco, California
June 12 to 16

STORMCON

Orlando, Florida
July 18 to 21

ASCE Pipelines 2004 Conference

Houston, Texas
August 21 to 24

ACPA Committee Week & CPU 301

Santa Fe, New Mexico
August 7 to 10

APWA Congress & Exposition

Minneapolis, Minnesota
September 11 to 14

**Transportation Association of Canada (TAC)
Annual Conference**

Calgary, Alberta
September 18 to 21

WEFTEC 2005

Washington, D.C.
October 29 to November 2

ACPA Fall Marketing Short Course School

TBA

BAUMA

Munich, Germany
2007 (every 3 years)

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ACTB



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