

The Digital Pipe Digest



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

Editor: A. Grant Lee, MCIP, RPP, MCInst.M., FCInst.M January 2006

Agenda firmed up for 2006 Joint AGM of CCPA/ACTB and OCPA in Vancouver

With little more than a month until the 2006 AGM, there is little time to finalize plans to attend the 2006 Annual General Meeting of the Canadian Concrete Pipe Association in Vancouver. This is the annual meeting held concurrently with the AGM of the Ontario Concrete Pipe Association.



There are some details that should be noted.

First, all delegates must register with the Ontario Concrete Pipe Association. You can fax the registration form to the OCPA, or mail it with your registration fee. Cheques are to be made out to the Ontario Concrete Pipe Association.

The OCPA has reserved a block of rooms at the Four Seasons Hotel Vancouver. The cut off date for reservations at the group rate is January 15, 2006. The reference code to receive the group rate is **"OCPA Group."** Rates are shown in the AGM brochure.

The AGM is set for February 17 at the Four Seasons Hotel Vancouver, located minutes from Grandville Island Market, Gastown,

Stanley Park and the west coast arts and entertainment scene.

You can learn more about the hotel by visiting www.fourseasons.com/vancouver.

The program for the AGM follows:

Friday, February 17

8:30 – 9:30	ACPA Canadian Region Meeting
9:30 – 11:00	CCPA/ACTB AGM
11:00 – 11:30	OCPA Suppliers Meeting
11:30 – 12:30	OCPA AGM
12:30 – 2:30	Annual Luncheon
2:30 – 4:30	Industry Technical Presentations
Heinz Ortwein	Co-generation from a concrete pipe manufacturing perspective
Chris Macey	Introduction of Standard Installation into Calgary
Nathalie Lasnier	MTQ CP specifications
Paul Smeltzer	MTO CP specifications
6:00 – 10:30	Reception

Saturday, February 18

8:30 to closing	Open Forum (Agenda TBA)
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Lafarge announces new concrete pipe plant for Edmonton Alberta

Lafarge North America Inc. (NYSE & TSX: LAF), the leading supplier of construction materials in the U.S. and Canada, announced on December 8, 2005 that it would build a new concrete pipe plant in Edmonton, Alberta and expand its Calgary, Alberta and Winnipeg, Manitoba pipe operations. These investments demonstrate Lafarge's commitment to serving its customers' expanding requirements.

Construction of the new facility will commence in the spring of 2006 and will replace the existing Edmonton operation. The new plant will have a production capacity of 150,000 tonnes and will enable the Aggregates, Concrete & Asphalt Division of Lafarge North America to meet the growing demand in the Western Canadian market. The new plant will produce concrete pipe in diameters of 300 mm to 3,000 mm, box sections to 3,000 mm, and a range of manhole and catch-basin components. Using state-of-the-art equipment and automation, the new plant is expected to be the most efficient concrete pipe operation in Western Canada.

In addition, both the Calgary and Winnipeg pipe facilities are currently being expanded. When completed in 2006, their combined production capacity will increase to nearly 140,000 tonnes.

As part of Lafarge's commitment to quality, all Western Canadian pipe operations are certified to Ontario Concrete Pipe Association (OCPA) requirements.

Lafarge North America is the U.S. and Canada's largest diversified supplier of construction materials such as cement, aggregates, ready-mixed concrete and concrete products, asphalt, and gypsum wallboard. The company's materials are used

in residential, commercial, institutional and public works construction across the U.S. and Canada. In 2004, net sales exceeded \$3.7 billion.

Lafarge North America's majority shareholder is Lafarge S.A. (Paris Stock Exchange: LG: NYSE: LR) Lafarge, the world leader in building materials, holds top-ranking position in all four of its divisions: Cement, Aggregates & Concrete, Roofing and Gypsum. Lafarge employs 77,000 people in 75 countries and posted sales of 14.4 billion euros in 2004.

New confined space regulation coming to Ontario

Effective September 2006, a new confined space regulation will come into force in Ontario. The regulation may be viewed at:

http://www.e-laws.gov.on.ca/DBLaws/Regs/English/050632_e.htm#BK0

Update on cement characteristics

A new cement survey provides comprehensive and valuable information on the properties and chemistry of modern cements. The information will provide guidance for ASTM to develop and revise cement specifications and test methods. It also allows historical comparisons to cement characteristics of the 1950s and 1990s.

Results show that early-age strengths increased for modern cements compared to cements manufactured in the 1950s. Strengths have not changed significantly during the past 10 years. A side-by-side comparison of the data from 1994 and 2004 shows that there were also no statistically significant changes in other cement properties during that time.

Source: PCA E-Briefing, email: info@cement.org

Nashville builds Disaster City

By Mike Kusch

Director of Technical Marketing

Sherman Dixie Concrete Industries

615-889-0700

mkusch@shermamdixie.com

An Emergency Preparedness Challenge is being held on April 7 and 8, 2006 in Davidson, Sumner, Williamson & Wilson Counties, Tennessee. It is being organized by Tennessee District 5 and Homeland Security.

The exercise involves first responders at every level of government. The Emergency Preparedness Challenge will be one of the Nation's largest local disaster response exercises. It will allow emergency teams, law enforcement agencies and 14 area hospitals to evaluate the District's plans and strategies for responding to terrorist and/or natural disasters.

The exercise will examine the District's strategy for responding to mass casualties, search and rescue for victims, triage and transportation preparation of survivors, hospital processing and treatment, processing of deceased victims and other disaster management efforts.

The Mayor's Office of Emergency Management's Heidi Jordan is the Exercise Coordinator (www.HSD5exercise.org). Richard Byrd is the Director.

David Himes, Assistant Director of Public Works Street Services, is taking on the challenge of constructing "Disaster City". Two simulated scenarios will be played out to the fullest extent. One is a terrorist attack on a downtown Nashville building, the other is a natural disaster. They are designed to overwhelm local capabilities and to force activation of all state and federal resources.

President Bush early in 2005 created NIMS - National Incident Management System, a branch of the NHSA - National Homeland Security Association, which declared all state Public Works departments as "first

responders" to natural and terrorist disasters. David explains that about 10 years ago Metro Nashville Streets and Roads Department became much more heavily involved in emergency activities. A few years ago, the Downtown Nashville tornado was an eye opener in showing where money needed to be spent to increase awareness and teamwork among the various agencies. Now Public Works and specifically David's department has their own USAR (Urban Search and Rescue) team, with supplies and command center on hand to meet every disaster or rescue need. They and others will be put to the test this April.

The terrorist scenario will be played out in multiple locations in Nashville. David is constructing an impressive downtown building



collapse. Piles of building rubble are being strategically placed around precast concrete storm drainage structures, manholes and vaults supplied by Sherman Dixie. The producer designed various sized precast vaults and chambers to represent voids that occur in a building collapse in which victims can be trapped. Sherman Dixie was approached to provide specific sized structures with strategic panels that would have to be removed by the rescue teams.

Dog sniffing rescue teams would be used to locate volunteer victims, and listening devices would be implemented to detect human sounds. Volunteers within these precast structures and the pipelines that connect them would use faint tapping techniques for rescuers to locate them. Even holes will be drilled into the rubble and chambers to place miniature video cameras to find survivors and mock casualties.



The idea for Disaster City came from a training trip that David and his crew observed in College Station,

Texas. Texas A & M has a huge mock-up city, complete with streets, buildings, and collapsible roofs – everything to simulate a downtown disaster. When finished, precast chambers will be completely buried by building rubble and large precast roof beam girders will be placed on top.

Heavy equipment and cranes will be dispatched to Disaster City to begin search and rescue efforts, as part of the drill. As well, the rubble of the collapsed building will be full of special effects. Gas lines will be incorporated throughout the rubble in which controlled flame flare ups can be simulated along with many other visual and audio distractions.

This emergency preparedness project is made possible by a federal grant. District 5 received approx \$1 million dollars for this exercise. The money is split between the four counties that make up District 5.

This will be an intense 24-hour drill with all agencies involved. Special Homeland Security guests from Washington, D.C. will be in attendance to evaluate the Preparedness Challenge.

For information about the project, contact:

David Himes-Assistant Director
Tel: 615.862.8755
David.himes@nashville.gov

Claims of 100 year service life for HDPE pipe placed in doubt by use of laser-video imaging

The American Concrete Pipe Association has been aiding the Florida Concrete Pipe Institute in its opposition to an attempt by the Florida DOT to institute a 100-year service life specification for HDPE pipe. Advances in laser-video imaging, has made a significant contribution to casting doubt on long-term performance claims of HDPE pipe manufacturers.

In May 2005, the Kentucky Department of Transportation formed a task group to evaluate the current specification and use of HDPE pipe on future KYDOT projects. It was decided that the long-term performance of previous HDPE pipe installations on KYDOT construction projects should first be evaluated.

KYDOT officials selected seven HDPE pipe sites for evaluation. Field evaluations were performed in July 2005 by the Kentucky Transportation Center located at the University of Kentucky and Pipeline and Drainage Consultants (Subsidiary of Spartan Construction).

Contained in this report is a discussion regarding field testing equipment and findings from each test site. Also included are individual images of observed distress, laser and manual deflection measurements, and preliminary conclusions and recommendations from the committee on the use of HDPE pipe on future KY DOT projects.

The KYDOT laser-video inspection results were shown in a meeting with the Florida DOT. Rinker Materials – Hydro Conduit Division and others are convinced that showing the actual Kentucky laser results impacted Florida DOT's attitude toward accepting a 100 year service life for HDPE pipe.

Subsequently, ACPA has allocated more money toward laser-video imaging and documentation of HDPE pipelines in selected States in 2006.

How Laser-Video Imaging Works

The light ring is projected a set distance away from the camera so that the entire ring is in view by the forward inspection camera. Where deflection is evident, the image is captured and software used to measure the deflection occurring at the point of the projected laser ring.

The projected light or laser ring is calibrated at the start of the inspection.

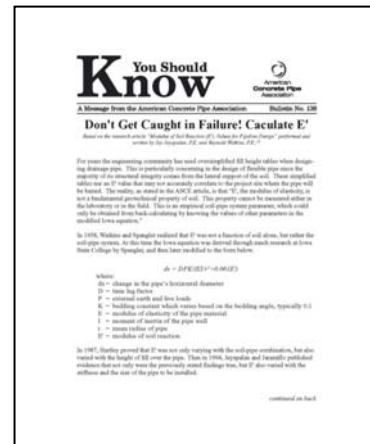
The engineer will set the required intervals for the deflection measurements to be taken. If higher deflections are observed between the set intervals, then additional measurements would be taken at these locations. Deflection measurements are taken in the vertical (6 to 12 o'clock) and horizontal (9 to 3 o'clock) unless other deflection is noted by the video inspection. Some systems allow for continuous monitoring for deflection in which a preset deflection value such as 5% can be preset into the program.

The benefit of this method is that not only deflection can be measured but also other defects can be noted. The laser ring significantly shows areas of HDPE pipe distortion such as racking, crown flattening, vertical and horizontal deflection that may or may not be observed or captured by video inspection alone. The technology can also pick up vertical and horizontal joint offsets, cracking, and debris.

The KYDOT report will be posted on the ACPA web site at www.concrete-pipe.org for public access once it is made public.

ACPA releases “You Should Know” Bulletin #138 to inform about E'

For years, the engineering community has used oversimplified fill height tables when designing drainage pipe. This is of particular concern in the design of flexible pipe, since the majority of its structural integrity comes from the lateral support of the soil. Simplified tables use an E' value that may not accurately correlate to the project site where the pipe will be buried.



The reality is that, “E', the modulus of elasticity, is not a fundamental geotechnical property of soil. This property cannot be measured either in the laboratory or in the field. This is an empirical soil-pipe system parameter, which could only be obtained from back-calculating by knowing the values of other parameters in the modified Iowa equation.” (*Modulus of Soil Reaction E', Values for Pipeline Design – research and report by Jey Jeyapalan, P.E. and Reynold Watkins, P.E.*) The Jeyapalan and Watkins report continues, “Taking E' values from the design guides or simple consensus standards of the pipe vendor should be avoided. If you have never worked with E' values before, it is better you consult an expert on how to establish these values for design.”

Although the equation that includes E' is still the current method used today, in 1998 McGrath proposed replacing E' in the equation with a true elastic parameter, Ms, the constrained soil modulus. This one-dimensional modulus can be determined by direct analysis from the hyperbolic soil model thus increasing stiffness with depth of fill.

McGrath suggested values of Ms to be used in practice. SW, ML, and CL represents well graded sand, sandy silt, and silty clay; respectively with 100, 95, 90, and 85 representing the corresponding compaction levels. These values have been adopted by AASHTO, which recommends designing with a compaction level 5% less than specified.

The ACPA's You should Know Bulletin #138 is posted on its Web site for free download. See www.concrete-pipe.com.

UT Arlington and Hanson, PLC collaborate to build largest structural research centre in USA

The University of Texas at Arlington's College of Engineering and Hanson, PLC will jointly develop a new research center for full-scale structural testing of heavy building materials. The center, expected to be the largest in the United States, will be located adjacent to Hanson's concrete pipe plant in Grand Prairie, about 10 miles east of the UT Arlington campus. It is expected to open by January 2007. All companies in the industry stand to benefit from the research that will be generated by the new facility.

The UT-Arlington Center for Structural Engineering Research (UTA-CSER) will be built with substantial contributions from UT Arlington and Hanson. The Center, with approximately 10,000 sq. ft. of conference/classroom/office space and approximately 20,000 sq. ft. of research space, will be operated by the College of Engineering's Civil and Environmental Engineering Department. The lab will be 55 feet high to accommodate testing of four-story buildings.

"This facility will have a huge impact on the university and Dallas/Fort Worth. Hanson initiated the idea and UT Arlington strongly supported it," said Civil and Environmental

Engineering Professor Ali Abolmaali, who will be the director of the center. "Richard Manning, President and CEO of Hanson Building Materials, N.A., their Regional President Clifford Hahne, Chief Structural Engineer Joe Lundy, UT Arlington's Dean of Engineering Bill Carroll, and Civil and Environmental Engineering Chair Dr. Sia Ardekani are all committed to make this center a reality."

The research area of the facility will contain state-of-the-art equipment and instrumentation, such as several 200-ton dynamic actuators, nano and laser sensors, and image processing devices. A reaction floor, the largest in the Nation, will have the capability to test several full-size building and bridge components simultaneously with monotonic, cyclic, dynamic, fire and blast loads. Reaction floors have specially reinforced foundations that are able to withstand severe loading. Two 50-ton cranes will move test specimens and materials to specialized equipment in the research area.

Dr. Abolmaali believes the Center will enable UT Arlington to compete with top national and international universities and research institutes for state and federal research grants. "This partnership will make our Civil and Environmental Engineering program rank among the top 20 in the Nation," he said. "We will be among a few research institutions to employ nano, laser and image processing technology for micro measurements and health monitoring of structural systems."

Plans call for the hiring of additional faculty and researchers to work in the center. Dr. Abolmaali is negotiating with the Kyungpook National University of South Korea to receive funding to support six post-doctoral fellows during the 2006-2009 academic years.

Hanson, PLC is one of the world's leading heavy building material companies. Hanson's operations are in the United Kingdom, North America, Australia, Continental Europe and

Asia Pacific, with more than 27,000 employees in 14 countries.

ACPA revises “Infrastructure Is Collapsing” brochure

The *Infrastructure is Collapsing* brochure of the American Concrete Pipe Association has been revised due to a legal issue which arose and a Corning, NY failure that was added to the brochure. The changes to the brochure were minor, but necessary. All previous brochures have been discarded. The ACPA is replacing the Resource Center inventory with the revised brochure. In addition to the New York failure, you will be able to tell the revised brochure from the former one by the title *Except for Concrete Pipe, It Stays in Shape* has been changed to *Concrete Pipe Stays in Shape!*

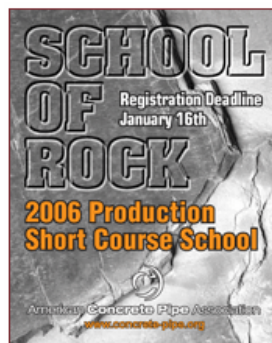
Copies of the revised brochure are available through the ACPA Resource Center or by ordering online at www.concrete-pipe.org, Part # 07-128.

ACPA Resource Center

675 Grigsby Way
Cedar Hill, TX 75104-2537
Tel: 800.290.2272 or 972.293.2171 (for questions or to place an order)
Fax: 972.291.0622

Production Short Course School early registration deadline closing

Early registration closes January 16, 2006 for ACPA's 2006 Production Short Course School (SCS), February 21 to 23, in advance of the 2006 MCPX Show in the city of Anaheim, California. Attendees will be schooled in the areas of production, leadership, quality and safety. Remember, however that



With today's fierce competition, it is imperative that people in the concrete pipe industry be equipped with the best knowledge available to work on the cutting edge of technology and management to increase market share. Don't miss the opportunity to learn from the most experienced and knowledgeable instructors in North America.

At the Production SCS, attendees will learn from some of the best in the precast concrete pipe industry. Industry peers and professional speakers will provide valuable insight and knowledge about quality, employee safety, workplace efficiencies, management tools, employee training and advanced production techniques. They will reward their employers by improving production with new ideas and techniques learned at the school.

This year's Production School will continue to cover some of the basics, providing valuable information for those new to the industry. New topics and information, however, will be covered in all areas of precast concrete pipe production.

The 2006 program will rock on with plant tours, concurrent sessions taught by industry leaders in the concrete pipe and box industry, a welcome reception, machinery clinics, Chairman's Safety Award Luncheon, and round table discussions.

Registration and Costs

The registration fee includes receptions at the school and trade show, lunches, all refreshment breaks, take-home reference materials, **plant tours and free admission into the MCPX Show**. You can register online, or mail in a registration, which can be downloaded from ACPA's web site. **Early registration closes January 16, 2006.**

	Before 01/16/06	After 01/16/06
ACPA Members	\$450 per person	\$500
Non-members	\$850 per person	\$900
Designer and Specifiers *	\$225 per person	

*(registered under the specifier fee category)

Hotel Info

The Crowne Plaza Anaheim Resort is conveniently located in the City of Garden Grove on the Anaheim border at the intersection of Harbor Boulevard and Chapman Avenue. This unique Mexican-themed resort offers Our Lady of Guadalupe Chapel, the Copa de Oro Restaurant, a complimentary shuttle to Disneyland Park, an outdoor heated swimming pool, on site bar, concierge services, and a business center. The wheelchair accessible resort is blocks from the all-new Anaheim Resort featuring Disneyland® Park, Disney's California Adventure® Park, Downtown Disney®, and the newly expanded Anaheim Convention Center.

The reduced room rate for the production school is \$125.00 (single or double). To make hotel reservations, contact the Crowne Plaza Anaheim Resort at (714) 867-5555. Be sure to identify yourself as an ACPA attendee to get our special group rate. **Room reservations must be made no later than February 2 to receive our group rate.**

Concrete pipe and box applications

Concrete pipe in North America has a long history of dependability and performance. Quality of product and performance standards have taken a giant leap forward, making concrete a preferred material for many traditional sanitary and storm sewer applications. Precast reinforced concrete pipe and boxes have created 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, tunnel systems for railways and raw material conveyances, 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.

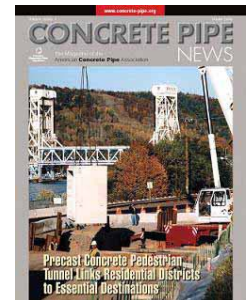
The concrete pipe industry and its associations regularly publish applications of interest in many trade and professional publications throughout Canada and the United States. Many published articles become archived on various Web sites.

Following is a compendium and summary of some of the articles published since January, 2006.

Concrete Pipe News

Five Percent Deflection Testing of HDPE Culvert and Sewer Systems Is Quickly Becoming The Norm

The closing of the gap between the recognition for deflection testing and recent developments where regulating bodies have zeroed in on the 5% limit, can be partially accredited to significant advances in equipment used for in situ pipe inspections.



Precast Concrete Pedestrian Tunnel Links Residential Districts to Essential Destinations

An impediment to residents who walk to Michigan Technological University (MTU), destinations in the downtown area, or Houghton's waterfront recreational attractions was the M-26 highway and increased traffic. Residents and visitors now benefit from a safer and more pleasant means of accessing these destinations because of a pedestrian and bicycle tunnel constructed with precast concrete box sections.

Storm Water Controlled - A Showcase Development Emerges

Precast concrete box sections were used to assemble a deep burial box storm sewer designed to accommodate a 100-year storm event and service a major gateway development for the City of Murfreesboro, Tennessee.

Delivery Of The Total Package

Based on historical performance, modern standards, quality control, education programs, and automation of the entire production process, concrete pipe will become more reliable than ever before. Recent progress in the quality and

performance of concrete pipe is largely due to advanced equipment technology and product development by the world's leading pipe equipment manufacturers and pipe component suppliers.

Precast Concrete Boxes and Pipe Solve Flooding Problem on University Campus

Auburn University now has a storm water management system that will age as well as the university has over its 150-year history. A precast concrete box storm water detention system that includes a concrete pipe outfall was installed to solve chronic flooding of a portion of the campus, and to replace failing corrugated metal pipe.

Environmental Science & Engineering Magazine

Neighbourhood benefits from tunneled concrete pressure pipe

A vibrant residential and commercial neighbourhood in the Town of Aurora located north of the City of Toronto was the first to benefit from the installation of a new concrete pressure pipe watermain, before it was commissioned to carry water. Design engineers decided to tunnel a 400 mm diameter watermain for 1,200 metres along the south side of Wellington Street, from west of Yonge Street to Berczy Street. The tunneled portion was part of a larger watermain installation project that extended between Orchard Heights Pumping Station and the Bayview Avenue Pumping Station.

Awards competition now accepting entries

Portland Cement Association (PCA) is seeking nominations for its tenth biennial Bridge Awards Competition. The program, co-sponsored by *Roads & Bridges* magazine, recognizes excellence in design and construction of concrete bridges. All types of bridges—highway, railway, pedestrian—in which the basic structural system is concrete are eligible. Entries are encouraged for cast-in-place or precast concrete bridges with short, medium, or long spans. Newly constructed, reconstructed, or widened structures qualify for the competition.

Submitted bridges will be judged by a jury of distinguished professionals, and winners will

be announced at the ACI Fall Annual Convention, Nov. 5-9, 2006. There is no fee for entry, and public and private organizations may submit as many bridges as desired.

Entries are due March 31, 2006 for entry form.

For more information, contact Shri Bhide at PCA 847.972.9100.

Looking back to 1905 in the USA



The year is 1905.

The average life expectancy in the U.S. was 47 years.

Only 14 percent of the homes in the U.S. had a bathtub.

Only 8 percent of the homes had a telephone.

There were only 8,000 cars in the U.S., and 144 miles of paved roads.

The maximum speed limit in most cities was 10 mph.

Alabama, Mississippi, Iowa, and Tennessee were each more heavily populated than California.

With a mere 1.4 million residents, California was only the 21st most populous state in the Union.

The average wage in the U.S. was 22 cents an hour.

The average U.S. worker made between \$200 and \$400 per year.

A competent accountant could expect to earn \$2000 per year, a dentist \$2,500 per year, a veterinarian between \$1,500 and \$4,000 per year, and a mechanical engineer about \$5,000 per year.

More than 95 percent of all births in the U.S. took place at home.

Ninety percent of all U.S. Physicians had no college education. Instead, they attended medical schools.

Most women washed their hair once a month, and used borax or egg yolks for shampoo.

Canada passed a law prohibiting poor people from entering the country for any reason.

The five leading causes of death in the U.S. were:

1. Pneumonia and influenza
2. Tuberculosis
3. Diarrhea
4. Heart disease
5. Stroke

The American flag had 45 stars.

Arizona, Oklahoma, New Mexico, Hawaii, and Alaska hadn't been admitted to the Union yet.

The population of Las Vegas, Nevada, was 30!

Crossword puzzles, canned beer, and ice tea hadn't been invented.

There was no Mother's Day or Father's Day.

Two of 10 U.S. adults couldn't read or write.

Only 6 percent of all Americans had graduated high school.

Marijuana, heroin, and morphine were all available over the counter at corner drugstores. According to one pharmacist, "Heroin clears the complexion, gives buoyancy to the mind, regulates the stomach and bowels, and is, in fact, a perfect guardian of health."(Shocking!)

Eighteen percent of households in the U.S had at least one full-time servant or domestic.

There were only about 230 reported murders in the entire U.S.

Concrete Pipe Industry Billboard

2006

World of Concrete 2006

Las Vegas, Nevada
January 17 to 20

TRB 85th Annual Meeting

Washington, DC
January 22 to 26

CCPA/OCPA Annual General Meetings

Vancouver, British Columbia
February 17

Ontario Good Roads Association Conference

Toronto, Ontario
February 19 to 22

ACPA Production Short Course School/MCPX

Anaheim, California
February 21 to 23

MCPX 2006

Anaheim, California
February 23 to 25

NUCA 2006

New Orleans, Louisiana
March 1 to 5

ACPA 98th Annual Meeting

Scottsdale, Arizona
March 5 to 9

Water Environment Association of Ontario

Toronto, Ontario
April 9 to 11

**Ontario Water Works Association / OMWA
Joint Annual Conference and Trade Show**

Toronto, Ontario
April 29 to May 3

**Canadian Environmental Conference &
Tradeshow (CANECT 2006)**

Toronto, Ontario
May 1 and 2

**Canadian Society for Civil Engineering Annual
Conference**

Calgary, Alberta
May 23 to 26

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

Montreal, Québec
June 2 to 5

AWWA Conference & Exposition

San Antonio, Texas
June 11 to 15

ACPA Committee Week & CPU 301

Overland park, Kansas
August 6 to 9

STORMCON

Denver, Colorado
July 24 to 27

ASCE Pipelines 2006 Conference

Chicago, Illinois
July 30 to August 2

APWA Congress & Exposition

New Orleans, Louisiana
September 10 to 13

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

September 17-20
Charlottetown, Prince Edward Island

AASHTO Annual Convention/2006 Trade Fair

Portland, Oregon
October 25 to 31

WEFTEC 2006

Dallas, Texas
October 21 to 25

ACPA Fall Short Course School

TBA

International NO-DIG 2006

Brisbane, Australia
October 29 to November 2

Construct Canada 2006

Toronto, Ontario
November 29 to December 1

Canadian Public Works Expo

Mississauga, Ontario
November 29 to November 30

2007

ACPA 99th Annual Meeting

Ritz Carlton, Florida
March 11 to 14

BAUMA

Munich, Germany
2007 (every 3 years)

2008

CONEXPO-CON/AGG

Las Vegas, Nevada
March 11 to 15

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ACTB



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association canadienne des fabricants de tuyaux de béton