SPRING/SUMMER 2011 Vol.1 No.4

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Priorities and Changes

2011 introduced a brand new year full of hope and expectations. While new construction is not as robust as some had predicted optimism edges out fading gloom as the year progresses.

Now, as the 2011 calendar year is well underway, MCABC is acting on those priorities identified in its long term plan. Staff continues to work hard to enhance services and organization, grow the membership, create a greater public and government awareness of the association and mechanical trade, and reinvigorate our relations with other affiliated organizations.

In 2011 we began with a new staff member and reorganized assignments for existing staff. Our new communications and marketing coordinator Rivka Lipsey joined us in mid-February. Rivka is a communications professional who, in a short career to date, brings a wealth of related experience from both association and private sector on top of pile of enthusiasm. Jane Andrew has been promoted to director of membership services and event planning positioning her to utilize her vast knowledge of the association to recruit new members and continue to take charge of event planning and organization. Jane Heilbrunn meanwhile began to expand her administrative skills in the executive assistant role to relieve Jane Andrew only to discover family matters will recall her home to Australia in June instead of December. The search has begun for an assistant to coordinate my activities and appointments as well as take charge of association meetings. Berry Lam continues to provide assistance with general office and accounting clerk duties. At Coastal BC Mechanical Trades Bid Depository, Barbara Stafford expands E-bidding opportunities in both the Lower Mainland and other regions of the province.

Mechanical contracting merges a myriad of technical installations. The shear variety of products invented, modified, added to or discovered that compete for a place in a structure's mechanical systems make this sector an ever-expanding universe of challenge and opportunity. In this issue we examine some of the current issues that impact the newer technologies that are becoming more prominent in both plumbing and heating systems. These include the use of 'reclaimed water' in purple pipes used in many geothermal systems, recent developments in solar energy and we'll keep you in the loop on new tools in the trade on our inaugural Tool Products page.

Have a good read, and if you have any comments, feedback, or points of interest worth sharing, write and let me know: *danat@mcabc.org*

Dana Taylor
Executive Vice President, MCABC

Hard at Work

All that good news I promoted in the fall has lost some of its luster as we entered 2011. While economic forecasts hold B.C. growth to the national average the latest Stats Canada reports show us in a bit of a trough with unemployment rising 2/3rds of a percentage point while other parts of the west and the country as a whole show significant job growth. I'm going to stay with the positive based on our own experience and the comments from competitors that new construction interest is once again on the rise.

My experience at MCABC continues to be a positive one as I get my feet wet with various association related assignments. In January I jetted to Orlando Florida and partook in the MCA Canada winter board meeting. I begin to understand the scope of this trade's activities and the added benefits of membership as we took action to support the National Trade Contractors Coalition Council (NTCCC) in its efforts to influence the federal government to adopt a fairer policy to ensure that trade contractors get paid in a timely fashion. Similarly MCA Canada continues to promote mechanical contractor interests before government and industry.

This past April, the Mechanical Service Contractors of Canada launched its certified contractor program, created with anticipated endorsements from the Building Owners and Managers Association of Canada (BOMA) and the International Facilities Management Association (IFMA) to demonstrate that MSCC members (you) raise the bar to provide a 'higher standard of service and value to its customers'.

This, our second edition of the re-vamped MCABC Magazine issue, continues to dialogue with and about our members. The featured member profiled in this issue is Georgia Mechanical, getting the low-down on the rise of one of B.C.'s most successful contractors growing up in the last 20 years. Similarly our feature project — Victoria's Dockside Green — speaks to trends in residential buildings while highlighting one of MCABC Vancouver Island's largest contractors C&R Plumbing, whose owner recent MCABC Life Member inductee Collin Smith decided to close the doors after a generation of success capped with an award-winning project.

Your board worked hard to revise and produce a strategic plan that provides the organization, its staff and membership with a road map to success. A synopsis of the current plan will soon be available online for member viewing. By following our plan the world will better know what B.C.'s mechanical contracting is about and who its people are.

The early spring has signalled the season of golf tournaments, conferences and annual general meetings, and both volunteers and staff are hard at work to make these events a continued success.

Consider this issue to be one more invitation to you to get more involved with your association. Our annual convention for 2011 was held in Penticton at the Lakeside Resort April 29th and 30th. This was a great event and a wonderful chance for our membership to meet the board and competitors on a playing field intended for just that — play! The business and entertainment program we had lined up made the trip entirely worthwhile, and I look forward to next year, when we assemble for the annual conference & AGM once again.

Your board worked hard to revise and produce a strategic plan that provides…a road map to success.

Michael Ohlmann
President, MCABC

MECHANICAL EXPERTISE

BY ROBIN BRUNET

Southeast False Creek Energy Centre

Greg Knight, owner of Georgia Mechanical Systems Ltd., prides himself on running a lean and mean operation, and for good reason: no bloated bureaucracy and no excess baggage equal maximum efficiency and versatility.

Knight's common-sense approach to business is evident as soon as a first-time visitor enters his headquarters in Richmond. Everything is designed for productivity, from the document filled cabinets to the drafting tables arranged in close proximity to one another. When the receptionist summons Knight, his head pops up from behind a divider just a few feet away.

Richmond Olympic Oval

Georgia was the mechanical contractor for the Richmond Olympic Oval, the massive Woodward's redevelopment and the Delta Vancouver Airport hotel renovation…

Although Knight presides over a small office staff, they have worked on many high-profile projects over the years. Georgia was the mechanical contractor for the Richmond Olympic Oval, the massive Woodward's redevelopment and the Delta Vancouver Airport hotel renovation — all in 2007. Georgia has worked on two-thirds of all the hotels built in Whistler, and it has even contributed to Vancouver's 21st century iconography: the five steel exhaust pipes of the Southeast False Creek Energy and Sewage Pump Centre that resemble fingers and whose tips light up at night.

Contributing to the deception of Georgia's size versus capability is Knight himself: at 55 he exhibits an easy-going attitude about his profession. For example, when asked how he has differentiated himself from the competition, he replies, "I haven't. Everyone in the mechanical trades has the same philosophy: do our best and keep the problems to a minimum."

Knight talks while engaging in a perpetual cycle of donning and removing his reading glasses and then looking around for them. He thinks about what he has just said and modifies his stance.

"I don't know if you'd call it differentiation, but we've always stayed small by handling four to six projects yearly. We hire as many as 70 employees when things get busy and about 15 when times are slow. Also, we rely on a half-dozen superintendents to handle our outside people, and we give them lots of responsibilities, including purchasing." Knight grins and shrugs. "Not many contractors would do this."

In many respects, Georgia Mechanical is a duplicate of Metro Mechanical, the company founded by Knight's father Del and which folded in the very same year — 1985 — that Georgia opened for business. "For our first job, we acquired the project that dad turned down before retiring: the renovation of the Heather Pavilion at Vancouver General Hospital," says Knight.

When told that many contractors regard institutional work as a nightmare due to its red tape, Knight looks surprised. "Really? Well, my background was in institutional, so we hit the ground running. We did $1-million in business during our first year, tripled that figure the following year, and today our volume is about $20-million. And I still love institutional projects."

Knight credits Del for his introduction into the mechanical trades, at the tender age of 17. "I was home for a week after leaving high school in North Vancouver, and dad told me `either you get a job or you go to university,'" he recalls with a laugh. "I was more of a builder than an academic, so I decided to work for my dad."

Apprenticeship, night school and employment at other companies followed, until Knight's desire to form his own company became intoxicating.

"By the time dad was approaching retirement age I could have bought Metro," he says. "However, union contractors at that time were having trouble surviving, so instead I launched Georgia, was busy from the start and never looked back."

But Knight is looking back now at his achievements, with a small mountain of documents to jog his memory. Staring at one file he says, "We've done over 100 schools in total. We worked regularly in Whistler up until last year when we com-

…the Southeast False Creek Energy and Sewage Pump Centre… won a Gold 2010 VRCA Award of Excellence.

pleted the new Coast Hotel now called Avia, but now the resort is pretty well all developed. We wound up working twice on the Powell River Secondary School and the Kamloops Delta Hotel because each facility burned down."

Knight's breezy manner comes from knowing his trade inside out, and he tends to gloss over the difficult projects he has tackled. When pressed to name a few, he replies, "After bidding on the Richmond Oval, Woodward's redevelopment and Delta Vancouver projects, I asked one of my partners, `What if we win one of these?' He said, `That'll be great.' I said, `What if we win two?' He replied, `Then we'll be swamped.' Well guess what, we got all three, and it was a nightmare to find qualified tradesmen because it was at the height of the building boom."

The only other project Knight admits was challenging was the Southeast False Creek Energy and Sewage Pump Centre, for which Georgia won a Gold 2010 VRCA Award of Excellence. "It was probably the most complex mechanical work we ever performed," he says. "The project was worth $7-million and involved installing all the boilers and heat recovery units in less than a year."

All indications are that Knight is hitting his prime, although he notes that "I have no kids to pass the business onto, so theoretically I could walk away tomorrow." But he has no intention to. "I have a great staff and I work for great clients," he says. "Right now we're busy with five projects, including the Capilano Film School and a 600 unit low rise for the University of British Columbia and a 150 unit high rise for a developer at UBC, and the diversity of our economy makes me confident about future opportunities."

Knight breaks into another grin as he adds by way of conclusion, "The bottom line is I enjoy the work. I figure I have at least five more good years left, probably more, before I even think about doing something else." PM

LEED PLATINUM PROJECT CROWNS CONTRACTOR'S CAREER

BY JEAN SORENSEN

PHOTO COURTESY STANTEC

After 43 years in the industry, Collin Smith, with wife and partner Roxanna, has closed his Victoria business C&R Plumbing, but not before completing a mechanical and plumbing contract for a landmark project in B.C.'s capital city.

Dockside Green is a 15-acre harbour-side, master-plan community with mixed-use residential and commercial building. Phase I has scored LEED Platinum, beating out another landmark development Aldo Leopold Legacy Center and achieving the highest rating in the world in its category with 63 points scored out of a possible 70. The developer was so determined to achieve the platinum certification that the company agreed to pay the municipality $1 million if the designation was not achieved.

That pledge placed a lot of pressure on the contractor and subcontractors. "It was challenging to meet all the requirements for platinum," acknowledges Smith, who has been actively involved with the Mechanical Contractors

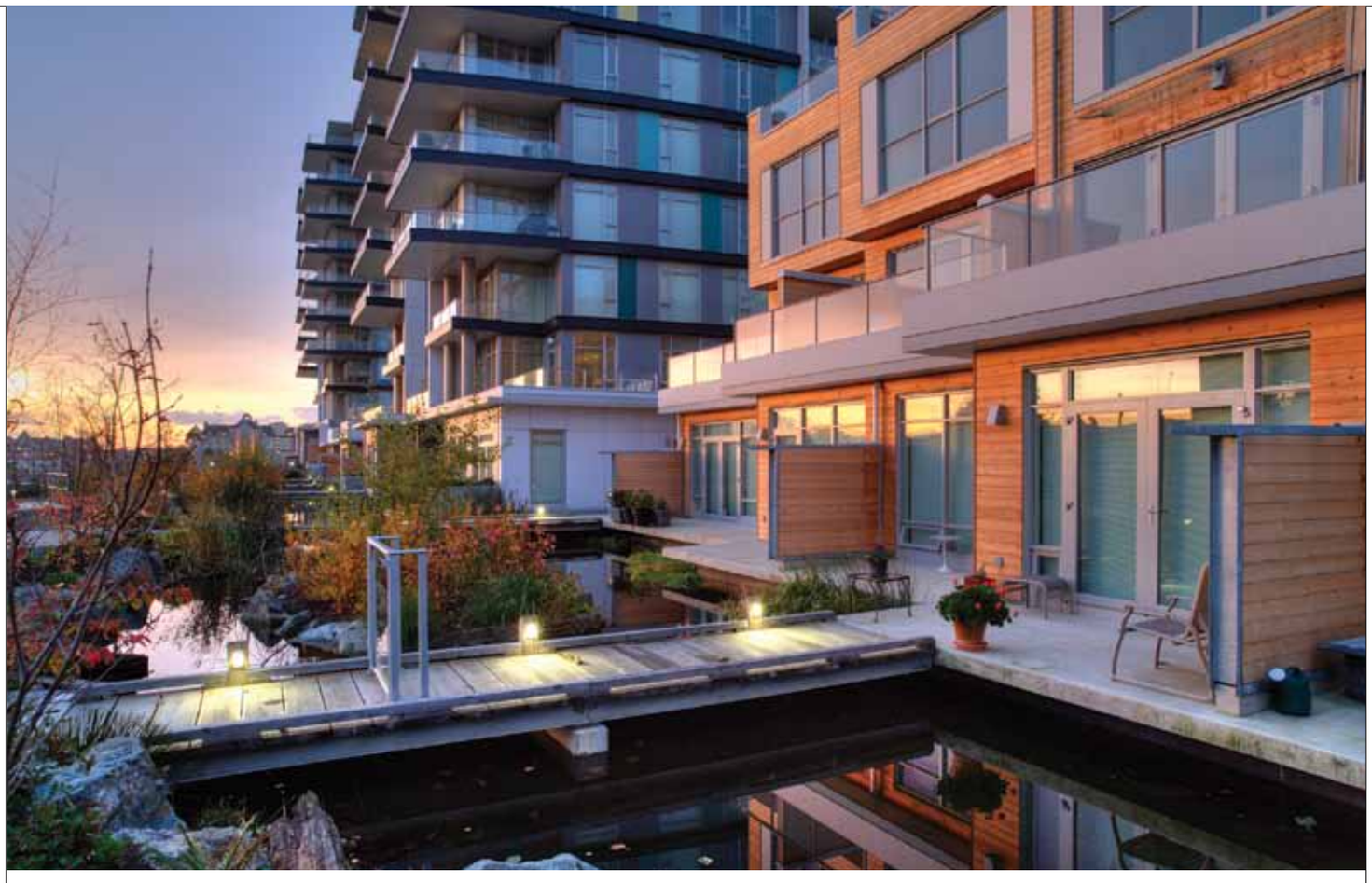


PHOTO COURTESY STANTEC

Association of B.C. (MCABC) for the past 30 years and recently received its honorary lifetime achievement award.

Smith's extensive background in mechanical and plumbing contracting, though, was exactly what general contractor Farmer Construction needed when it won the contract to construct what is now a showcase sustainability project.

Every feature of the mechanical and plumbing is innovative and often the conceptual designs needed a company that could make them a reality on the ground — and do it with a mind for cost-efficiency. "They came to us from day one and we were able to help them plus save them some money," says Smith.

The heating and cooling system in the residential units consists of a hot and cold water system that relies upon the same lines supplying hot and cold water for domestic uses. Valves release hot and cold water into the heating and cooling lines, flushing it out, and eliminating the risk of bacteria build-up. Total Comfort Heating and Cooling, located in Ontario, devised the system and also came up with the computerized control values and automatic flush system, says Smith. The hot or cold air is derived from coils (filled with either hot or cold water) and a fan, which blows air through them into the various rooms. "The fans blow circulated air into the unit with a make-up of fresh air that is about 10 per cent," he says. Displaced air is vented through a heat exchanger on the roof of each building.

"The biggest challenge was getting the flows right so you would have the right gallons per minute going through the line," he continues.

C&R Plumbing built a sewage and water treatment facility on site that allows Dockside Green to recycle 100 per cent of its water…

The pump worked with a variable unit drive system which relied on "smart boxes" that recorded the unit users' need, so it could ramp up or reduce the flow as heating or cooling was required within the system.

The system's heat source for the water (both domestic and heating) is an innovate biomass system that does not just burn wood, but through a combined chemical and thermal process, causes wood residuals to decompose and the resulting gases are scrubbed and burned. The system is located in a separate building and each of the Dockside Green buildings is charged according to usage. Surplus heat is directed to off-site customers, says Smith. The system is owned by Vancity, Corix and Terasen Gas and was manufactured by Nexterra Energy Corp.

C&R Plumbing also built a sewage and water treatment facility on site that allows Dockside Green to recycle 100 per cent of its water and save 70 million gallons of water a year — the amount used in the City of Victoria on the driest day. While the sewage and water treatment facility does not have a LEED designation, it is built to favour the LEED protocol. It receives grey and black water from a range of sources (toilets through to site run-off) which goes into a multi-chambered facility. Solids are separated out. (Eventually, the plan for the solids is to compress and burn them). The water from the solids goes into several chambers of bacteria and forced air encourages bacteria absorption of waste material.

This bacteria treated water then moves to the next chamber "a membrane filtering system", tells Smith. It's a ZeeWeed membrane that is able to filter water through microscopic pores before allowing water to go into a final treatment tank where it is exposed to ultra-violet light to deter bacteria growth. Treated water is held in a reservoir, with excess bleeding off to a central lake that is part of the landscaping area. The lake feeds in to the ocean and the regional district carefully monitors water quality.

The sewage treatment facility returns water for use in irrigation, toilets and laundry. Smith says the system treats material so successfully there is no odor.

"We initially had some glitches but we were able to solve them," he says, adding that a coffee shop and bakery co-exists next door at the same site with no problems. The on-site lake and river are so environmentally friendly that "the other day there was a river otter in it having a good time with the fish," tells Smith.

Phase I took 18 months to complete, which included a year to construct the sewage treat-

PHOTO COURTESY STANTEC

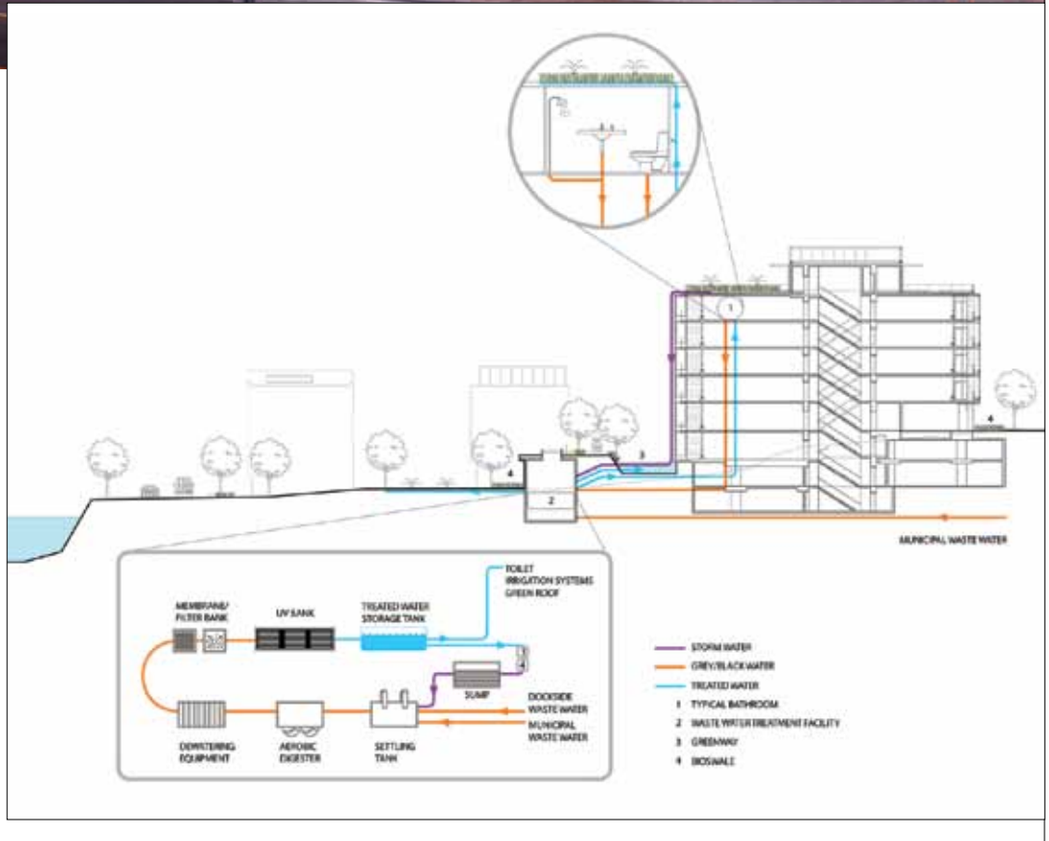


DIAGRAM COURTESY BUSBY, PERKINS + WILL

ment facility. All building material waste was sorted and taken to recycling plants. Smith's company also carried on to do Phase II which consisted of commercial structures and towers. "It was really twice the size and larger than Phase 1," he says.

At the same time, Farmer Construction rebuilt the old Princess Mary ferry site office to use as its own and Smith supplied the plumbing and mechanical on that job as well.

Dockside Green's advanced systems are a long way from those that Smith first began working with 43 years ago. "The products today (such as plastic pipe) are a lot easier to work with," he says. "I started working with cast iron, lead and oakum."

Another major change he sees today is health and safety regulations "which have become huge in the last 40 years." He says that while it has added to the cost of labour, it has played a vital role and "saved lives".

The honorary lifetime achievement from the MCABC gave Smith a sense of satisfaction to be acknowledged for his contribution, he says.

"It was a surprise but one that was anticipated," he chuckles.

He's been involved with the MCABC management committee handling union negotiations since 1984 through to 2009 and he also sat on the health and welfare pension plan committee from l986 through to 2010. He's served as past chair of the Victoria chapter of the MCABC and has been on the board of directors since 1984 until resigning last year.

As he looks over cruise brochures these days and enjoys the freedom of being able to plan trips around the Pacific Northwest at short notice (something Roxanna and him weren't able to do when managing a business), there is one concern he has for the industry's future.

"It's older guys like me retiring," he says, adding that engineering firms often rely upon the accumulated expertise of master tradesmen like himself to provide the technical knowledge and know-how for design. As greater numbers of baby-boomers retire, there will be a gap in the market that universities training mechanical engineers will have to address.

The good news is that individuals like Smith are being wooed back by engineering firms as consultants. He's received a few offers. After a few cruises and if he gets tired of the unfettered freedom of not running a business, Smith says he may wander back to the fold.

"Maybe," he says, "If I get bored." PM

Green Plumbing

Purple Pipes are driving the next wave of water conservation

BY RON HARTMAN

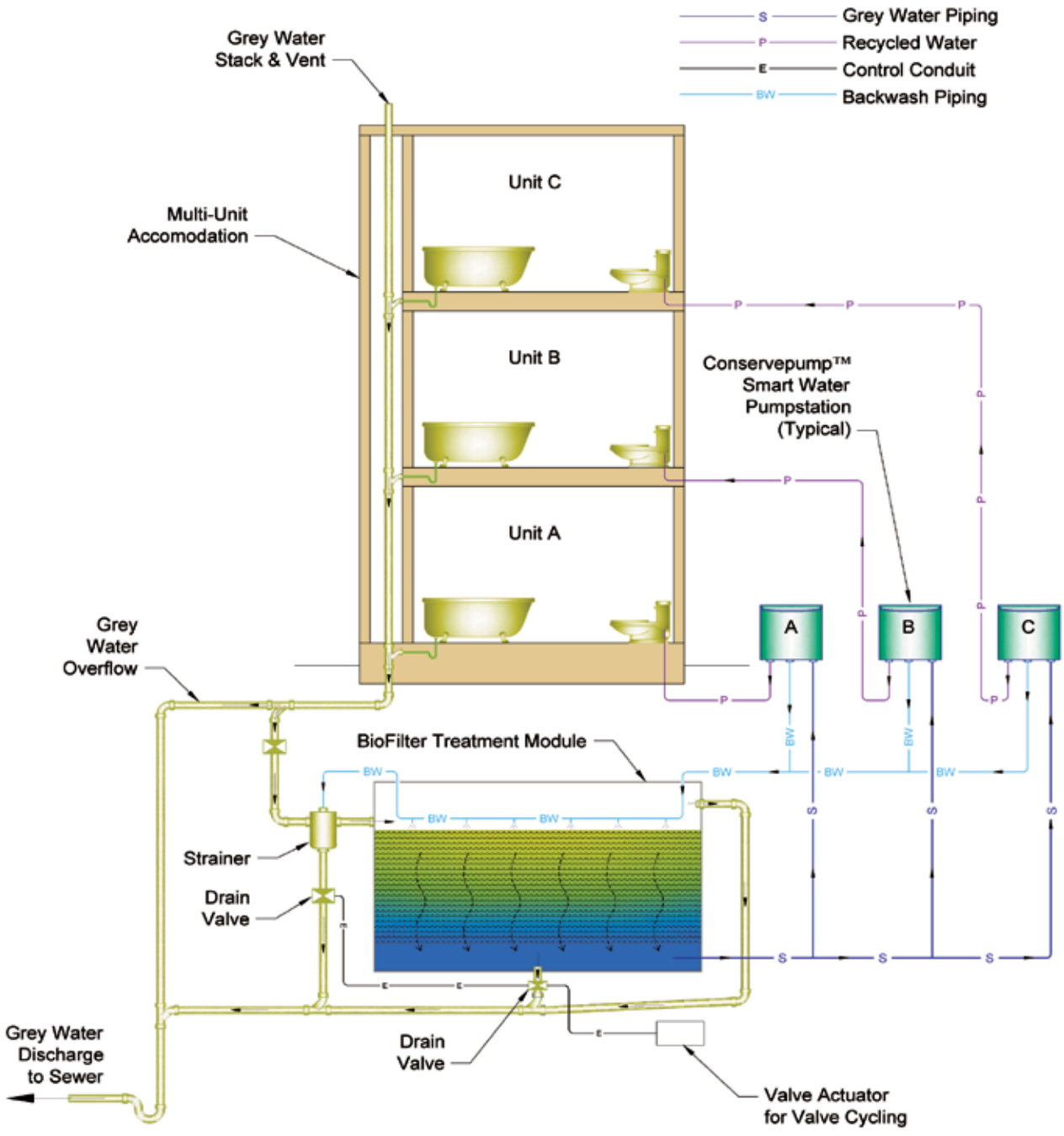


Diagram B

Multi-Unit Greywater System

Energy has alternatives — but clean water doesn't. Many governments are already feeling this real pressure point. Water system problems are systemic — lessening supply, growth exceeding capacity, and combined with aging deteriorating infrastructure — it's clear water system managers need to act. And the B.C. government has proclaimed that 50 per cent of growth-driven water demand must be met through conservation. The question now is: how will that conservation be achieved?

Now that simple water conservation measures have all been enacted, B.C. has identified purple pipes as one solution, and the reasons might surprise you.

At a small percentage of the cost of new metering programs or other infrastructure upgrades, purple pipes have the potential to make a real change in consumer water use patterns because they allow the replacement of drinking water in toilets with reuse water. Then every flush reminds people to conserve, and to become water conservers in all aspects of water use. This is the

real power of the purple pipe. And reuse of bathing water for toilet flushing is ideal; the cleanest used water is used for the least demanding application. Adding the fact that most people generate about the same amount of bathing water as their toilets use makes 'bath to toilet' the ideal application of purple pipes.

Recent changes to BCBC Section 7 allow for the reuse of non-potable water in buildings. Purple pipes feed this water to toilets. They are simply conventional pressure water pipes coloured purple to indicate the water in them is non-potable. Despite discussion around more complex marking systems, the trend is emerging to use purple for all non-potable water types. Uponor and other manufacturers make it, and have supplied it to municipal level water reuse projects.

So when regulators decide on a program of water conservation through reuse, they can now work together with builders to get purple pipes installed in houses, and also support new technologies/systems that enable this conservation opportunity. And having plumbers install code-compliant grey water systems (such as Andrew Sheret's Conservepump) means that inspections are covered under the conventional permitting process.

B.C. committed to 'purple pipes in all new construction' by 2010, as an Olympic legacy and as an indication of what the government's vision for the province is. But past purple pipe experiments in Europe and the US have been problematic. Typically they envisioned large-scale communal reuse systems (usually fed by highly treated sewage) under local government responsibility. These systems require huge upfront capitalization coupled with perpetual operations and maintenance expenditures. And there are serious safety concerns related to non-potable water being accidentally consumed due to cross-connections.

And there are other disadvantages. Toilets are chronic water wasters, not just through normal use. They are particularly prone to leakage internally and externally, and represent one of the weakest servicing links in the home. So any purple pipe system needs to be able to monitor the operation of the toilets it's connected to, to ensure they are not leaking, and if so, to shut them down. A leaking toilet can use as much water in 24 hours as it would normally use in eight months! And purple pipe systems need to work when the power is out, so that toilets still keep flushing just like users expect. This adds to the woes of large communal systems.

But unit systems (one per home/apartment/condo) can solve these problems. There is no capital cost to government; owners combine low system costs with easy maintenance, and unit systems virtually eliminate dangerous cross-connection risks. And in the case of Conservepump the system automatically monitors toilet performance, regularly purges (or recirculates) the storage tank water, and has back-up power, finally paving the way for the large-scale uptake of purple pipe technology.

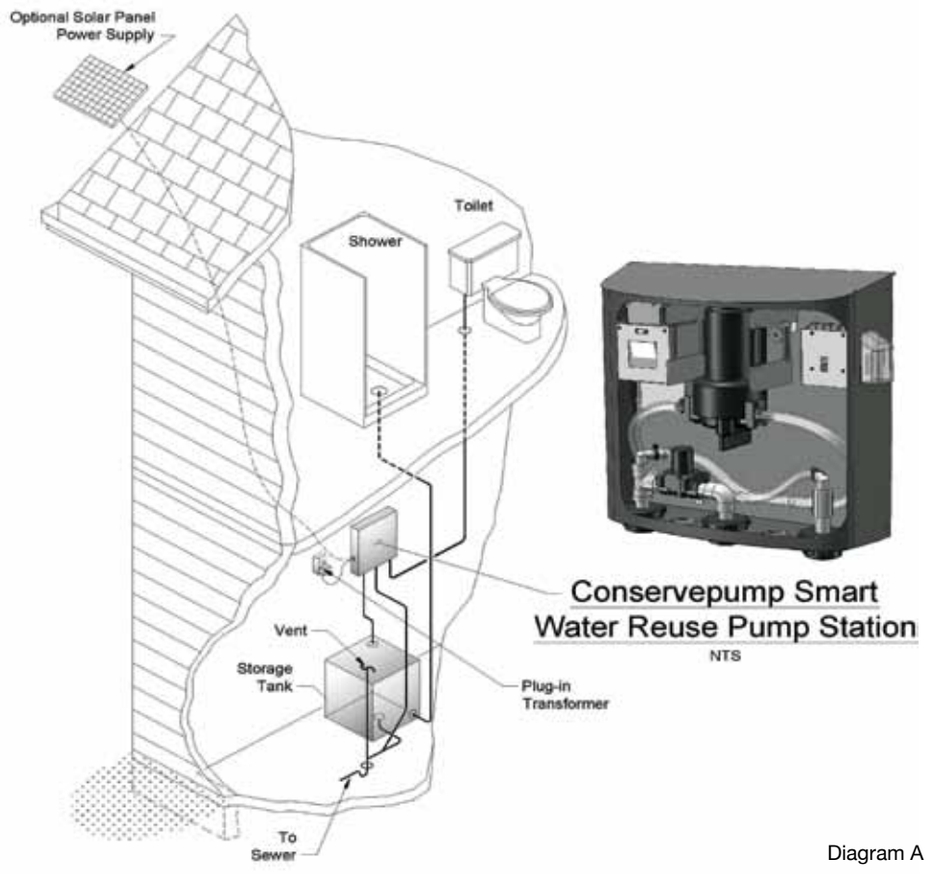


Diagram A

Unit-type systems take two forms: a simple 'one per single-family dwelling' version (Diagram A) using 'strain, settle and purge' treatment to ensure water quality, and more-complex systems for multi-unit and strata developments (Diagram B). Both have the same collection and redistribution hardware, but multi-family systems need to be supplemented with a module that cleans the reuse water even more to allow it to be shared. A process is currently under development for this application.

This new technology allows code-compliant installation of a 'standard' purple pipe system into a house and potentially into low-rise strata developments. The layouts shown connect the fixtures, provide for make-up water addition, provide the right level of treatment, and provide storage all in compliance with existing building codes. A Conservepump pumping/control station feeds the reuse water to the purple pipes, conducts the treatment dosing or regular purging, manages make-up water, and monitors each unit's toilets to complete the systems.

Now local governments have a meaningful opportunity to take the next step in implementing water conservation safely, and without bearing capital costs or increasing operational expenses. And they can start with their next building permit application. PM

Ron Hartman, AScT., is a water reuse specialist. He is CEO of iDUS Controls Ltd., whose products address the growing need for practical home-based water conservation. Their Conservepump Home SmartBox enables the first plumbing code-compliant domestic water reuse system available in North America. For more information, *rhartman@idus.ca.*

Geo-Exchange Piping

STORY AND PHOTOS BY GEOFF MCDONELL

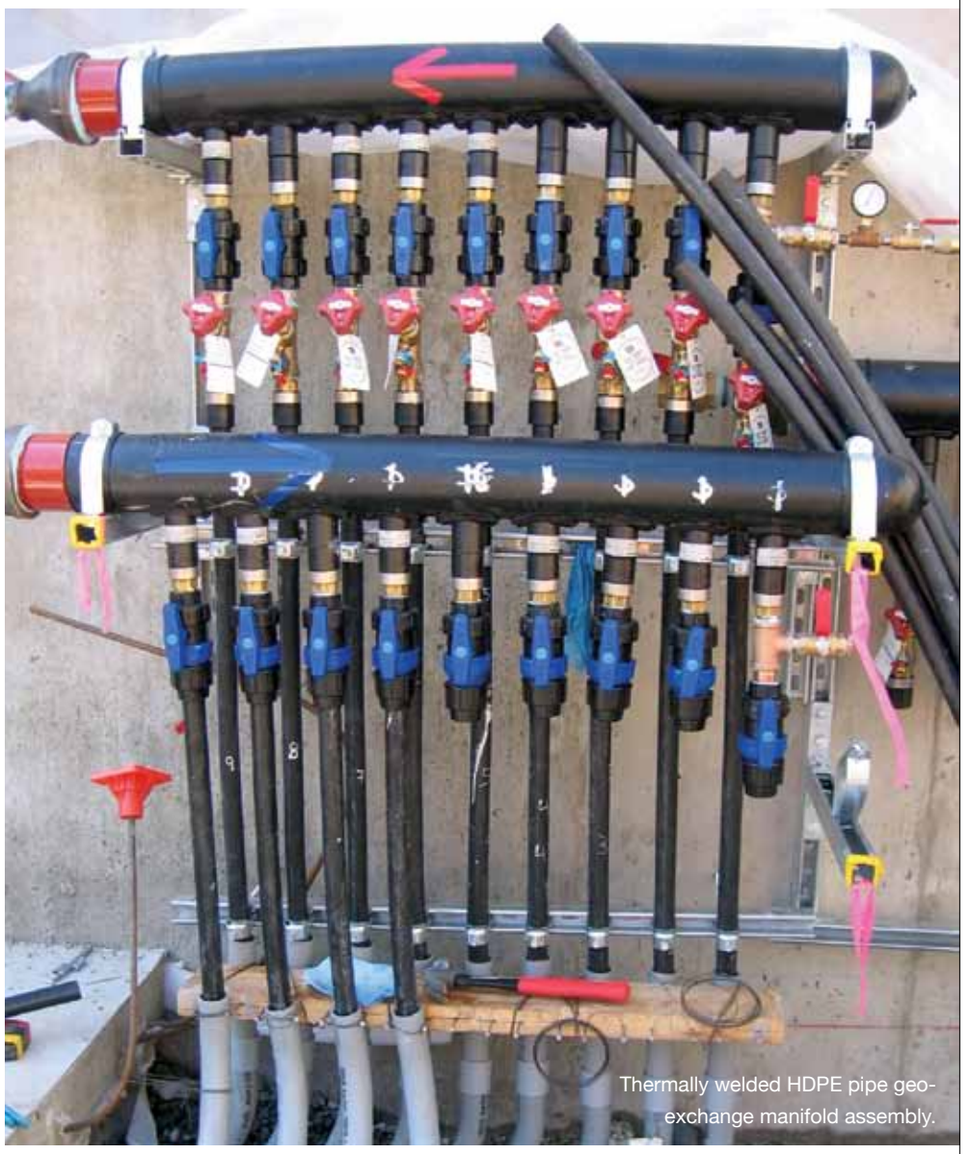
Geo-exchange heat pump systems are becoming much more popular these days, as more technical design information, access to very good learning sources, and experienced practitioners are becoming more numerous. Geo-exchange heat pump systems can be a very energy efficient building comfort system source provided they are applied properly, and designed in an integrated manner. One of the keys to a successful geo-exchange heat pump system installation is using the proper materials, assembled correctly.

The most common closed-loop geo-exchange piping material has become high density polyethylene plastic pipe (HDPE), due to it's relatively low cost, resistance to any kind of soil chemical reactions, it's ductility, and availability on a number of applicable sizes and long continuous lengths, that meet the relatively low operating pressure and temperature ranges for geo-exchange systems (-5˚C to 50˚C, up to 1,379 kPa [200psi]). This makes it the best choice for everything from a vertical well system through horizontal slinky coils, and even straight pipe horizontal systems.

Typically the smaller residential systems use a 1 inch (25mm) diameter HDPE pipe for the low flows and low loads involved. Larger commercial systems can use everything from 1 inch (25mm) to 1-1/2 inch (38mm) diameter HDPE pipe depending on the size of the geo-exchange system, flows and system load. The key design issue is to insure that there is always turbulent flow in the pipe for best heat exchange capability with the surrounding soil. Vertical borehole style geo-exchange systems generally use the smaller diameter pipes in order to fit down the drilled well-hole and have a compact short radius U-bend at the bottom of the borehole. Horizontal geo-exchange filed that utilize slinky coils or straight runs tend towards the larger pipe diameters for maximizing loop sizes and to accommodate larger commercial loads.

Plastic piping manufactured specifically for geo-exchange system applications must meet the following specifications:

- ASTM Standard Specification D3350 with a cell classification of 345564 or 345434
- NSF 358 Plastic Piping System Components for Earth Energy (Geothermal) Systems (2010)
- ASTM D 2447-03. Standard Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80,Based on Outside Diameter



Thermally welded HDPE pipe geo-exchange manifold assembly.

- ASTM D 2683-04. Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
- ASTM D 2737-03. Standard Specification for Polyethylene (PE) Plastic Tubing
- ASTM D 3035-06. Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
- ASTM D 3261-03. Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
- ASTM D 3350-06. Standard Specification for Polyethylene Plastics Pipe and Fittings Materials ASTM F 714-06a. Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
- ASTM F 1055-98 (2006). Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing
- AWWA C901-02. Polyethylene (PE) Pressure Pipe and Tubing, ½ in (13 mm) Through 3 in (76 mm), for Water Service Plumbing Fittings
- CSA B137.1-05. Polyethylene Pipe, Tubing, and Fittings for Cold Water Pressure Services
- CSA C448.1-02, Design and Installation of Earth Energy Systems for Commercial and Institutional Buildings
- CSA C448.2-02, Design and Installation of Earth Energy Systems for Residential and Other Small Buildings

Standards that are specific to the Canadian market for HDPE piping are:

- Certification to NSF Standard 14 Plastic Piping System Components and Related Materials

- Hydrostatic Design Basis or Minimum Requires Strength per Plastic Piping Institute (PPI) TR-3
- Material requirements per Plastic Piping Institute (PPI) Statement Q
- CSA B137.1-05 Polyethylene Pipe, Tubing, and Fittings for Cold Water Pressure Services
- CSA C448 Standards for Commercial and Residential earth Energy Systems.
- Cell Classification 345564 or 345434, ASTM D3350
- Material Standard PE 3408

Additionally, the geo-exchange piping must be clearly marked in a defined fashion. In accordance with B137.1 and C448, the following markings must appear at intervals not exceeding 150 cm, on high-density polyethylene pipe used in Geo-Exchange systems:

a) Nominal pipe size (e.g. "¾ inch" "1 inch" or another size);
b) Manufacturer's name or trademark;
c) Date or Date code of manufacture;
d) Raw material designation (e.g. "PE 3608" or other acceptable PE number);
e) The intended service — for Geo-Exchange systems, this must read "geothermal - C448" or "geo - C448"; Note: the pipe must not carry the word 'Potable' or 'PW' on its surface and must carry 'OD' as per CSA Standard B137
f) The pressure rating, series, or class (e.g. "SDR 11", "series 160," or other); and
g) The CSA Standard number, in this case 'C448'.

Not just any plumber can thermally weld plastic piping…

HDPE piping is a thermo-plastic material which means that it is best assembled using thermal fusion joints. A heating tool equipped with heating plates and mandrels are required to thermally weld HDPE piping together using butt fusion assemblies or socket welded joints and fittings. The welded plastic joints are just as strong as the rest of the pipe material and when properly welded are leak-proof and withstand the rated working pressure of the piping. Not just any plumber can thermally weld plastic piping, and a certain amount of training is required to become proficient at this skill. Once certified as a plastic pipe welding specialist, a large variety of building system piping opportunities can be found, not just geo-exchange piping — there are lots of polypropylene plastic acid waste drain pipes that can be thermally welded, other building service piping like Aquatherm® plastic piping, right up to large diameter sewer and water piping for utility services. PM

Typical thermally welded coupling for horizontal geo-exchange pipe.

Geoff McDonell, P.Eng., LEED AP, is mechanical engineering manager at Cobalt Engineering. With more than 30 years of experience in mechanical engineering design, he specializes in HVAC, plumbing, fire protection design, controls systems design and passive building design. Geoff has worked on several projects following the LEED rating system since 2001 and is currently sitting on the City of Vancouver's Urban Design Panel.

Solar Energy: It's Just a Matter of Time

BY MIRKO SLIVAR

Penticton Regional Hospital

HOW A SOLAR THERMAL SYSTEM WORKS

The solar collectors convert the light energy into heat. The collector is the vital link between the solar energy and the hot water system. There are three types of solar collectors used for the majority of installations here in Canada: unglazed, flat plate and evacuated tubes. Unglazed are the simplest kind of solar collector; they only consist of an absorber (no glazing and no insulated collector box). A flat plate collector is made up of a metal absorber housed in an insulated collector box with a transparent glass cover. Evacuated tubes are individual glass cylinders with internal absorbers, evacuated similar to your well known thermos flask. Typically, unglazed collectors are used for lower temperature applications such as swimming pools, flat plate collectors are used for medium temperature applications such as domestic hot water and evacuated tubes are used for higher temperature applications such as industrial heating and cooling. In all three types of collectors, the sun's rays are absorbed, converted to heat and then transferred to the heat transfer fluid. This heated fluid is then generally stored in storage tanks to be used by the mechanical system as and when needed.

A solar system will also typically have a heat exchanger, a heat transfer fluid, pumps, a controller, pipe and fittings, expansion tank, pressure relief valve, backflow preventer, air vents, anti scald valve and thermal insulation.

CHALLENGES

There are a number of challenges facing the solar thermal industry in B.C. as it moves forward from being considered a new and novel technology to a mainstream industry. One of these challenges is training, not only contractor training but also inspectors and the engineering community. Though there is a hot water installer certification program offered by CanSIA (Canadian Solar Industry Association) there are a number of unique features to a solar thermal installation that differentiate the installation from a standard plumbing or hydronic system. If the installers are not aware of these features and don't understand the reasons behind them, there is the potential for installations to be done that don't work, to the detriment of the owner and the industry as a whole. Training is also an issue with local officials. Because solar thermal is new to many of them, they may not understand some of the critical system features that they need to review and may err on the side of extreme caution, which they must, having the public's safety as the driving criteria. There is also not a great deal of expertise available in the engineering community. Without engineers putting the time and effort into studying the solar thermal industry, of which many of the practices come from Europe, the ability for industry to hire competent engineers is limited.

Another challenge the industry faces is consistent funding, or lack thereof. EcoENERGY offered the renewable heat program but this program has come to an end and there is no sign from Ottawa that this program will be renewed. The Public Sector Energy Conservation Agreement (PSECA) program also offered funding but it too has come to a close. Without long term and stable funding, it is very difficult for industry players to plan and make long term investments to grow the industry. If business cannot plan more than a year in advance, they will not make the investments necessary to sustain the growth that the industry has seen over the past two years.

Yet another challenge that the industry faces here in B.C., is the low cost of "mainstream" energy sources. At the time of this writing, the commodity cost of gas is as low as $4.57 per GJ and electrical rates, depending on usage, is about $0.07 per kWh. Any form of alternative energy is difficult to promote when existing forms of energy are so low in consumer cost.

BENEFITS

Even with the challenges noted above, there are some facts about the global solar energy industry that cannot be denied.

More energy from sunlight strikes the earth in one hour (4.3 x 1020 J) than all the energy consumed on the planet in a year (4.1 x 1020 J).

The earth receives about 10 times as much energy from sunlight each year as that contained in all known reserves of coal, oil, natural gas and uranium combined.

Even though these facts are more global in their nature, they should help drive us as a society to develop and take advantage of this resource to its full extent.

On a more individual level, every gigajoule of energy that a solar thermal system provides at no cost is one less gigajoule of hydro, gas, coal or other form of energy that must be provided at varying levels of cost to both the owner and society.

DEMAND

Over the past two years, with the funding that was in place, the solar thermal industry was doing very well. Installations were done on municipal pools, multi-family residential buildings, health-care facilities, numerous single-family residential buildings as well as education facilities and other types of buildings.

How the industry will fair over the next two years, without this form of funding, time will only tell.

On a positive note, the global benefits stated above for the solar industry are so glaringly obvious, that it is only a matter of time before the industry becomes truly mainstream. PM

Mirko Slivar, P. Eng., C.P., is a project manager with Stantec in Kelowna.

TOOLBOX

VIDEO INSPECTION SYSTEM

The Seeker Video Inspection Systems (DSC400) are a line of low-cost video camera scopes that are highly versatile for the visual inspection of areas inaccessible to regular visual inspection. This model features a wireless, detachable, high-resolution video screen and will data log still images and record up to 3 hours of video. *www.generaltools.com*

PLASTIC PIPE FITTING REAMERS

Plastic Pipe Fitting Reamers are available in four sizes for Schedule 40 PVC and CPVC. The PPR reamers fit into standard 1/2-inch drills and feature a four-sided carbide insert, which provides one extra cutting edge after 180-degree cutting insert rotation. *www.reedmfgco.com*

LENOX T2 SAW BLADES

LENOX T2 Demolition Blades are the widest blades in the demolition category and provide maximum durability and control. T2 Wood cutting reciprocating saw blades have a tooth geometry that lasts longer and cuts faster in nail-embedded wood. All metal, wood and demolition cutting blades now deliver 100% longer blade life. *www.lenoxtools.com*

RATCHETING WRENCH

This new 4-in-1 ratcheting wrench set does the work of eight combination wrenches or sockets with just two tools. The wrenches' 12-point sockets offer more points of contact, and their one-handed operation allows for fast and easy performance. *www.channellock.com*

GROOVELOCK PLIERS

The new jaw designs include Smooth Jaws and Straight Jaws that feature GrooveLock's patented press-and-slide-button technology. This "magic button" feature adjusts the lower jaw two times faster than any other adjustable tongue-and-groove pliers, providing unmatched speed and precision-adjustability on the job. *www.irwin.com*

CORDLESS ROTARY HAMMER DRILL

With a redesigned hammering mechanism, the Hilti TE 6-A36 provides superior drilling performance up to 5/8" in diameter. It features an ergonomic grip design and best-in class-performance-to-weight ratio and drills more holes per battery charge than other cordless rotary hammers. *www.hilti.ca*

GLIDE LOCK PIPE CLIP

An innovative, economic product that will help save time and make the installation of pipe easier. It has a 2 position locking system: position 1 permits pipe to move freely back and forth while pipe is mounted to easily achieve fit, crimp or solder applications. Position 2 locks pipe securely and firmly in place. Available in sizes: 1/2", 3/4" and 1". *www.warwickhanger.com*

A Swing to the Left

BY MICHAEL GEOGHEGAN

After an unprecedented changing of both governing and opposition party leaders, politics in British Columbia has taken a significant step to the left.

After several dramatic rounds of vote counting Christy Clark emerged as the new leader of the BC Liberals and Premier of British Columbia. A federal Liberal, Clark beat out her closest rival Kevin Falcon who is a federal Conservative. Soon after being sworn in as Premier, one of Christy Clark's first acts was to raise British Columbia's minimum wage; a move that set her distinctly apart from her predecessor Gordon Campbell.

One could argue that in doing this Clark was setting a more left wing agenda; but more importantly what she has set is a more populist agenda; that is a government that is prepared to listen much more closely to the concerns of average British Columbians.

The opposition BC NDP meanwhile also had a leadership race. Their race also required several rounds of voting for their new leader to be declared. Unlike the BC Liberals who went with the populist choice, the BC NDP chose Adrian Dix who some have uncharitably characterized in the media as a "dour Stalinist."

Dix is certainly far from being a populist or a political moderate. Should he be elected Premier his first act would be to significantly increase the provincial corporate tax rate. He also makes no bones about the serious approach he takes to politics. Dix it seems is not there to win converts but to convince the party faithful to vote.

The reasoning seems to be that if enough NDP true believers are motivated to vote in the next provincial election, that it will be enough to win an upset victory. Such an approach seems very unlikely to work. This skepticism was best summed up by a recent editorial cartoon which showed a groundhog looking at a paper declaring Dix the winner and thinking, "four more years of opposition."

Of course the real wild card in all this is the potential emergence of a provincial Conservative Party. In appointing Kevin Falcon as Deputy Premier, Premier Clark has hoped to forestall this from happening. In order to prevent the BC Conservatives from having enough time to organize you can also expect a provincial election to happen sometime this fall.

But in electing Dix as their new leader, the BC NDP have sent a chill through many in the business community. If they had elected a more moderate candidate like Mike Farnworth (who finished second) or John Horgan (who finished third) there might have been those who would have been willing to gamble on one term of NDP

governance in order to revive the BC Conservatives. But with Dix as opposition leader few will want to take such a risk.

Thus the biggest unifier Christy Clark may have, aside from her own charm and popularity, will be Adrian Dix. She faces her first test when in May she will seek to be elected the MLA for Vancouver Pt. Grey. I predict that she will win by a comfortable margin in a riding that the NDP has only won a couple of times back in the 1990s when moderate Mike Harcourt was leading their party.

Once she has returned to the legislature then British Columbians will face a clear choice between a centrist Premier and a left wing opposition leader. Both relish parliamentary debate and in fact both first faced off against each other in University Model Parliament back in the mid-1980s when Christy Clark was a student at Simon Fraser University and Adrian Dix a student at UBC.

Barring the rise of the BC Conservatives, it is a safe bet that this fall's provincial election will see the re-election of the BC Liberals and four more years of opposition for the BC NDP. If that happens it will be a tough pill for their party establishment to swallow as they have gambled everything in backing Dix on a motivating the base strategy. PM

Michael Geoghegan is a government relations consultant based in Victoria, B.C.

The views and opinions expressed herein are those of the author. Moreover, they are not endorsed by MCABC and do not necessarily reflect the views of MCABC, its board or its executives.

One of Christy Clark's first acts was to raise British Columbia's minimum wage; a move that set her distinctly apart from her predecessor Gordon Campbell.

MCABC Lifetime Member Awards Dinner

MCABC presented seven individuals with lifetime membership awards on January 19, 2011 at a special dinner held at the Delta Burnaby Hotel & Conference Centre in Burnaby. Members honoured were: Robert Bivar, Gerry Forcier, Robert Jones, Robert March, Helmut Musil, Collin Smith and Gerry Wong. (Helmut Musil and Robert Jones could not attend).

WELCOME TO THE NEWEST MCABC MEMBERS

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MCABC's 67th Annual Conference & AGM

It's Not Easy Being Green

This year's 2011 annual conference and AGM was held in Penticton B.C. at the Penticton Lakeside Resort. Enthusiasm was rampant and attendance was fruitful, as MCABC welcomed 144 returning conference delegates, 44 conference first-timers and seven new association members. The conference program began bright and early on Friday April 29th and carried through until late in the evening on Saturday night, April 30th.

During their stay in Penticton, MCABC conference delegates enjoyed a busy weekend, comprised of industry networking, socializing with colleagues, business programs and meetings, leisure daytime activities, outdoor adventures, guest speakers, dinner entertainment and the ever-popular tradition of associates night games.

This year's MCABC associates committee hosted a raffle-style fundraising initiative in an effort to support a local Penticton charity. Proceeds from the raffle fundraiser are going to a local Penticton charity called "Cops for Kids" — a charity made up of dedicated RCMP members and support people who are committed to assisting children that are in medical, physical or traumatic crisis within the Southern Interior region of British Columbia. When associates night came to a close, the associates had raised a whopping $850.00 for their charity of choice — way to go, associates! To find out how you can support Cops for Kids, visit them online *http://www.copsforkids.org.*

UPCOMING EVENTS

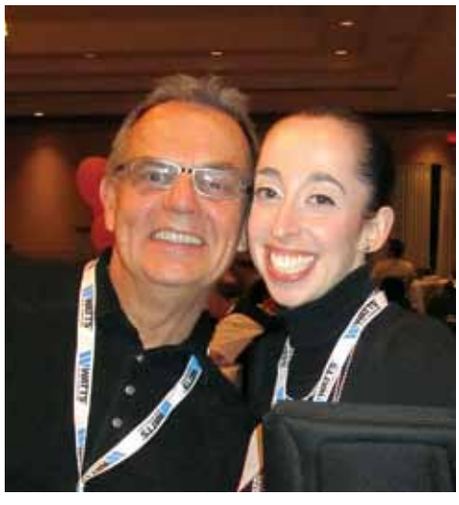
May 27, 2011
Fraser Valley Golf Tournament
Ledgeview Golf Course, Abbotsford
1:00 pm shotgun start

June 10, 2011
Vancouver Golf Tournament
Northview Golf and Country Club, Surrey
8:00 am shotgun start

June 15, 2011
MCABC & BCEA Joint Okanagan Golf Tournament
Sunset Ranch. Kelowna

September 7 – 11, 2011
9th World Plumbing Conference
Edinburgh, Scotland

September 10, 2011
Victoria Golf Classic
Cedar Hills Golf Course, Victoria
1:00 pm shotgun start



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Contact: Paul Aucoin

MCABC 2010 Christmas Open House

The MCABC Christmas Open House was held at the MCABC office in Burnaby on December 2, 2010. A BIG THANKS to the members — with your help we collected 146 lbs of food for the Vancouver Food Bank and with the competitive bidding at our silent auction table and the 50/50 draw raised $2,992 for this year's charity — children with learning disabilities — Vancouver Learning Disabilities Association (LDAV).

We would also like to thank Rick Mearns, one of Vancouver's most popular magician for his amazing trick that still have us mystified! Our silent auction table would not have been as spectacular as it was without the donations from: Alpha Mechanical Contracting Ltd; BFL Canada Insurance Services; Bibby-Ste-Croix Division of Canada Pipe; Canplas Industries Ltd; Coastal BC Mechanical Trades Bid Depository; Con-Cur West Marketing Inc.; Dan-Jen Mechanical Ltd; ESC Automation Inc.; Harrison Hot Springs Resort; IPEX Inc.; Jardine Lloyd Thompson Canada Inc; Kwantlen University; Lockerbie & Hole Contracting Limited; Melissa Andrew — Party Light; MPH Supply Ltd; Rising Agency; Sandpiper Soap Company; UA Local 170; Viaduct Sheet Metal Ltd.; Vancouver Regional Construction Association. You can view photos taken during the open house at *http://www.facebook.com/album.php?aid=42925&l=c6c22b0461&id=35181049969*

Presenting the cheque to Diane Sugars of LDAV is MCABC's executive vice president Dana Taylor. For more information on LDAV visit:http://www.ldav.ca/index.shtml

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ASHRAE HONOURS

At the ASHRAE 2011 Winter Conference held in Las Vegas Jan. 29 to Feb. 2, 36 people were recognized for outstanding HVAC&R industry achievements.

Richard P. Perry of DEC Design Mechanical Consultants in New Westminster received the F. Paul Anderson Award, ASHRAE's highest given for technical achievement awarded for notable achievement of outstanding services performed in the HVAC&R field. Perry is a presidential member, P.Eng, Fellow ASHRAE, Life Member, senior engineer and emeritus.

GREEN FACILITY

Metro Vancouver's Waste-to-Energy Facility has been granted LEED Platinum by the Canada Green Building Council for a $1.2 million green upgrade of the administration building.

The facility is located in a commercial and industrial area in Burnaby. It has a steam-driven turbo-generator that produces electricity, which is sold to BC Hydro and distributed on its electrical grid.

The steam created is also sold to a nearby paper recycling plant, which uses the steam to run its operation without the use of any natural gas.

Each year, the Waste-to-Energy Facility generates enough electricity to power more than 14,000 homes.

Since its opening in 1988, it has played an essential role in the region's waste management system. The facility is processing approximately 280,000 tonnes per year or about 20 per cent of the region's solid waste, in an environmentally safe manner.

Metro Vancouver has approved a further $7 million upgrade to reduce air emissions from the facility.

WORLD PLUMBING DAY

In a combined effort, the Mechanical Contractors Association of Canada (MCAC), the Canadian Institute of Plumbing and Heating (CIPH) and the Mechanical Contractors Association of BC (MCABC) successfully obtained a proclamation from the province's Attorney General officially declaring Friday, March 11, 2011 "World Plumbing Day". In so doing, B.C. has joined the growing numbers of governments — municipal, provincial, state and national — across the globe that are beginning to recognize the importance of plumbing to the health of the global population. B.C. has done us proud by adding both its voice of concern and interest.

The three organizations have joined forces to continually promote the World Plumbing Council (WPC) initiative, designed to raise awareness of the important role played by plumbing in relation to both public health and the environment.

As part of their continued promotional efforts, MCAC, CIPH and MCABC are encouraging all levels of government to recognize the day within their own jurisdictions. Plumbing organizations in several countries celebrated World Plumbing Day with big plans and grand events, with the principal celebration taking place in India.

Established in 2010, thanks to the efforts of the World Plumbing Council (WPC), World Plumbing Day is dedicated to helping the general public better understand the vital role the plumbing industry plays in protecting public health and safety, the extent to which it helps limit mankind's environmental footprint and other important work performed by contractors, inspectors, installers, engineers, and manufacturers that is often taken for granted.

BUILDING PERMITS

According to VRCA's analysis of a recent Statistics Canada building permit report, building permit values driven by residential activity in the Lower Mainland-Southwest region, rose slightly in January supporting the general positive outlook for the construction industry.

Total building permit values in the region edged up three per cent in January compared to December 2010, to $372.2 million. Residential permit values rose to $292.8 million, up 43 per cent for the month, while the value of non-residential permits fell 50 per cent to $79.4 million.

Year over year total building permit values were up three per cent Lower Mainland-Southwest region to $372.2 million in January. Total residential permit values were up 11 per cent to $292.8 million from $262.9 million last January. Non-residential permit values were down 19 per cent to $79.4 million from $98.6 million last year.

The outlook for 2011 is generally positive, but further drop-off in public permits is expected. Credit conditions for private non-residential investment spending are expected to improve in 2011 along with commercial market conditions, which would lead to an increase in private sector investment.

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