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These are exciting days at Defence Construction Canada. The organization is poised to celebrate 60 years of service to the Canadian Forces and the Department of National Defence.

A milestone achieved as much through ingenuity and innovation as skilfulness and sound management.

“DCC has a long and distinguished history of supporting the infrastructure needs of the Canadian Forces, whenever and wherever they have needed us,” says DCC President and Chief Executive Officer James Paul.

As he speaks about the path that has led the organization to where it is today, Paul's pride is palpable – pride in bricks and mortar, yes; however, it goes deeper than that.



“From day one, our employees have been at the forefront of some of the most difficult and demanding eras in Canada's defence history, yet they have never lost their resolve to make a meaningful contribution and to apply their professionalism and resourcefulness towards getting the job done. I personally find this to be an inspiration.”

When DCC was first stood up in 1951, the Cold War was unfolding amidst tremendous fear and trepidation. There was great concern over how Canada would protect itself and its citizens, both here on Canadian soil and overseas. Just as it does now, the organization responded and built whatever infrastructure was necessary, from underground bunkers and radar stations to European installations.

From a staff of 29 delivering \$80 million in infrastructure projects in 1951, DCC has evolved into a lean, responsive and dynamic company with more than 900 employees delivering more than \$800 million in infrastructure projects last year.

And instead of relying on direct federal government funding, DCC operates entirely on a fee-for-service basis charged back to its Client Partner – DND and the CF.

“From day one, it has been engrained in our culture to operate as efficiently and responsibly as possible and I think the continued success we have achieved for our client-partner springs from that mindset that each and every one of us adopts.

“With that to guide us, we are more than able to execute our core values of dedication, fairness and competence. As for what the future holds, I am confident that our employees will continue to be the valued partner



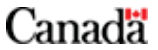
future.”

that the Canadian military turns to when the clock is ticking for delivery of critical infrastructure projects and something needs to get done yesterday. We’ve done it for 60 years and we’ll continue to do it in the

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Building information modelling – a tool for the future

Defence Construction Canada is eyeing a new building system database that is poised to become the industry standard for modelling in three dimensions. If fully embraced by government and industry, which could be as much as 10 years away, the database will revolutionize the way buildings are constructed and operated.

"I personally believe that it will become the industry standard because there are too many benefits," says Linda Newton, DCC's National Service Line Leader for Real Property Management Services. "It's not a question of will it become the standard, but when will it. It has to. There is too much value for owners and contractors and designers so there is no reason for this not to happen."

The Building Information Model, or BIM, is an integrated, building system database that represents the physical and functional aspects of a building. When fully used, it combines all design, construction, lifecycle and operational information into one centralized file for a given building. The BIM is meant to evolve over the lifetime of the building and be used by all parties involved from the designer to project manager to contractor to the building owner. The entire building system is visually modeled in a 3-D format using objects which are imbedded with information.

"BIM will do for CAD what GIS [geographic information system] did for mapping. It takes everything out of a flat 2-D environment into 3-D," says Newton. "Ten years ago if someone would have said 'Google Earth' to you, you would have said, 'Google what?' That's the kind of paradigm shift we're talking about."



Using BIM, everyone can input data collaboratively and view the information in 3-D just by clicking on the appropriate icon.

"In simplest terms, if you had a complete BIM model for your house you'd be able to view it in 3-D; you'd have all of the information required to determine when you need to replace your roof or have someone actually inspect your roof and input what they told you about it; same with your furnace or other parts of your home. All of this information goes into the database that you could then access to figure out how you're going to look after this house."

The potential to revolutionize how we design and construct buildings using BIM is enormous. "What BIM also does is allow you to check for interference between different elements in the design such as space requirements, mechanical, electrical, structural, etc. Are your beams and columns interfering with each other? Do you have a mechanical pipe going through your beam? The BIM model can flag those issues. It allows people to work on aspects of the design independently and then bring the information together in a common place."

There are contracting challenges with the introduction of the new modelling capability. In Part 2 of this article in the June 2011 newsletter, we'll look at what those challenges are and how industry plans to tackle the issue.

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Peter Sarty, Richard Weatherhead and their colleagues at DCC Halifax are overseeing the upgrade of the Navy's submersible vessel lift and the building of a large maintenance shed at Fleet Maintenance Facility Cape Scott. The work is required to facilitate repairs to Canada's Victoria-class submarines, which are bigger and heavier than their predecessors.

A number of factors associated with the project are presenting challenges that require a high level of oversight and on-site supervision by DCC, Sarty says. These include an aggressive project schedule to meet the Navy's needs, and the sheer size of the shed, which is nine storeys high, the length of a football field and about half as wide. The shed will also feature an interior rail-based crane system and a hatch in the roof to accommodate the extended periscopes of submarines under repair.

Changing site conditions are also a concern, says Sarty, Construction Program Manager. "For example, we uncovered old foundations and timber cribs in the dockyard that we didn't know about." Situations like this, he says, "underline the important role we play as the information conduit between the client, consultant and contractor."

The project is the largest in Halifax at the moment and, at \$47 million, represents a significant investment by DND. It has given Sarty, as a newcomer to DCC, an appreciation of the importance of the decision-making process and documentation that each DCC project requires. "We must never overlook the importance of contract administration to get the money flowing and the decisions made properly. This is not just an old-school construction site."

"This is a high-profile, unusual job," Sarty notes. "But we're up to the task and happy to be involved."

Sarty expects construction to be completed in 2012, with the project currently having reached the 40 percent mark. The 288 piles that are required for the shed foundation have been driven, and the building is being erected. Work on the submersible lift will be take place around the Navy's maintenance schedule.



The on-going erection of the structural steel skeleton for the Permanent Submarine Maintenance Facility at CFB Halifax

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DCC is developing a source list that is expected to reduce the time it takes to engage consultants who provide architectural and engineering services for major construction projects.

"Right now, we have a lot of criteria for consultants to meet for large projects," says Mélinda Nycholat, Director, Contract Services, "and we require firms to qualify over and over again for similar projects." DCC shortlists companies and then asks for a technical proposal. This approach lessens the impact on the firms but can take as long as four to six months to complete. It also means that consultants, who participate in scoping out the project requirements, come onto the project after much of that thinking and planning is already done.

"DCC always looks for ways to improve processes," Nycholat says.

After consultation with DND (Director Construction Project Delivery; DCPD) and industry on how best to gain efficiencies while still ensuring quality, DCC decided to develop a source list of prequalified companies. The new list, which will be in place for three years, will include half a dozen firms that can provide national services for five or six different categories of work. Work will be assigned on a rotational basis.

Besides saving considerable time in the preliminary phases of project, this approach will make it possible for consultants to provide their input earlier, participating in open and constructive discussions with DCC and DCPD about the direction of the work. This approach will also cut down on the effort required for the companies to receive work from DCC.

Nycholat says DCC is currently soliciting proposal from firms with the hope that the list will be in place in the next couple of months. Overall, DCC expects to award about \$45 million in business to the firms on the list over the next three years.

DCC will continue to procure consultant services for small projects and those that require particularly specialized services through the current Request for Proposal process. Nycholat notes that DCC, in conjunction with industry and DCPD, is also looking for opportunities to streamline this process as well.

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DCC at Work is our Corporate Services newsletter, delivered bi-monthly to our public- and private-sector partners and the public at large. The articles in DCC at Work focus on service-delivery success stories, from the most complex projects to innovative ideas that save time and money.

To suggest story ideas or to comment on the newsletter, please contact [the Editor](#).

Look for the next issue of *DCC at Work* in June 2011.



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