

KINGSTON, CANADA



Kingston thrives with diversified economy and investment in innovation

INSIDE:

Updates on Correctional Services of Canada and CFB Kingston capital projects

Kingston thrives with diversified economy and investment in innovation



Regional Detention Centre HeadQuarters Project
- Fuller Construction



Memorial Centre Outdoor Pool and Building Project



Downtown Kingston "Big-Dig" Project

STAFF WRITER – The Ontario Construction Report Special Feature

Kingston, Ontario is thriving with a diversified economy, exceptional living conditions and significant capital investments and improvements in both traditional infrastructure and new industries.

The 160,000-population community, conveniently accessible to Toronto, Montreal, Ottawa and northern New York, offers “a high quality of life with a business focus on innovation,” says Jeff Garrah, chief executive officer of the Kingston Economic Development Corporation (KEDCO), the community’s marketing and development agency focused on providing developers and business owners with site selection, business start-up and expansion services.

Kingston is home to three major post-secondary educational institutions – Queen’s University, St. Lawrence College and the Royal Military College of Canada - and what has been described as “Canada’s smartest workforce.” The community boasts a balanced public/private sector mix – creating both stability and new economic opportunities. Canadian Forces Base Kingston, Correctional

Service of Canada, academic and healthcare institutions provides a degree of economic stability and recession-proofing for the overall economy. More than \$1 billion in new capital projects in 2010 have added to the city’s strengths, including the expansion of the Canadian Forces Base, upgrading of the Kingston University Hospitals and improvements to both roadways and underground sewer and water infrastructure. Going forward, a major renovation of the Collins Bay Institution will create hundreds of jobs for the construction industry and ongoing employment for psychiatrists, doctors, guards and administrative staff, among others.

“Kingston has a diversified economy, a strong existing business base, talented labour force, great quality of place, educational institutions, healthcare and a solid cultural and historical foundation,” says KEDCO’s Garrah.

A recent report indicates that Kingston has the best employment outlook in Canada, with 33 per cent of employers planning to increase their workforce in the next year. To support this growth, KEDCO recently established a labour market development office where staff works directly with companies to help them find and retain employees.

“Our community also offers a distinctive lifestyle,” he notes. “We have access to lakes, rivers and an attractive and lively downtown core. Living costs here are much lower than in the bigger cities. Family physicians are accepting new patients. And, the region has a broad range of sports and cultural events. These characteristics make Kingston a great place to live and work.”

Investments in Innovation

The ongoing growth of the city goes hand-in-hand with numerous capital projects and expansions. The Ravensview Water Pollution Control Plant recently upgraded with a \$115 million capital project, features leading edge technologies being copied around the world. Off the shores of Kingston is home to the second-largest wind facility of its kind in Canada, the Wolfe Island Wind Farm, which realized a total capital cost of \$478 million for the 86 turbine, 198 megawatt project which began operation in 2009. GreenCentre Canada, the national research centre for green chemistry and PARTEQ Innovations, the research commercialization arm of Queen’s University are seeing spin-off companies emerge and establish in



CFB Kingston demolition, Making way for new and updated facilities

KINGSTON

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Kingston with world-changing discoveries. St. Lawrence College has also become recognized as the leading green training centre in Canada, with wind turbine, geo-thermal and solar energy technician programs.

Kingston General Hospital's recent expansion has created both construction jobs and opportunities for ongoing hospital employment, while providing quality medical care close to home. CFB Kingston, meanwhile, is a central foundation of the economy with a tradition dating back to the 1800s. Defence Construction Canada is spending millions of dollars in Kingston. With 9,000 military and civilian workers, it is the city's largest employer. CFB Kingston's upgrades include expanded training facilities, a new health centre and an all-ranks dining facility.

Queen's University is also growing. With a new Athletics and Recreation Centre which opened in 2010, further campus construction is underway with work on an expanded School of Business, new School of Medicine and the Isabel Bader Centre for the Performing Arts. The institution is a versatile employer including academic,

skilled trades and service workers.

Multiple levels of government are also investing in significant infrastructure projects throughout Kingston. The 401/Division Street project has improved accessibility and Kingston's capacities as a distribution/logistics centre. Over 50 acres of newly serviced employment lands have been brought into the city's inventory to keep up with demand; and, major renovations of Kingston's historic downtown core, nicknamed "The Big Dig", recently won accolades by national colleagues.

In the private sector, Bombardier received a \$1.5 million grant from the provincial Eastern Ontario Development fund to help pay for a \$26 million project to design, test build and deliver transit vehicles to the global market. The plant, which opened in 1978, is the only complete transit testing facility in Canada and employees 224 full time people. The facility includes a 16,000 sq. ft. office and 20,000 sq. ft. testing facility.

"Kingston outperforms the region in job growth, high employment rates and educated labour force," says Garrah. For more information on working and doing business in Kingston, visit kingstoncanada.com.

Downtown Kingston "Big-Dig"



PHOTO BY PAUL WALSH



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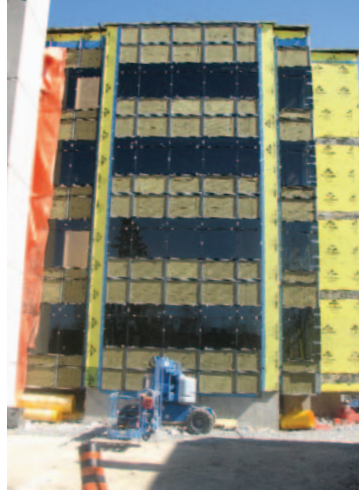
CFB Kingston: Expansion, maintenance create multi-million dollar construction industry opportunities

EllisDon co-ordinates \$165 million Academic Complex renovations



Luis De Matos - EllisDon
Superintendent RMC
Girouard & Sawyer
Renovation Project

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Military College Revitalization Project

STAFF WRITER – The Ontario Construction Report Special Feature

Renovations and upgrades at Canadian Forces Base (CFB) Kingston are creating multi-year, multi-million dollar construction industry opportunities.

“There is a need to update and replace dated defence infrastructure to meet the challenges of the 21st century,” says Lt. (N) Sylvain Rousseau, CFB Kingston’s public affairs officer.

The scale of projects either under-way or planned for the next several years is mind-boggling.

For example, a massive project at the Royal Military College (RMC)’s academic complex – providing a new insulated exterior and upgrades to mechanical systems and structures at the Sawyer Complex and Girouard buildings – is expected to have a budget of approximately \$165 million by the time the work is completed in 2016. This multi-stage project is only one of 11 infrastructure projects planned or under-way at CFB Kingston, for which a government back-grounder says will contribute upwards of \$300 million to the economy.

EllisDon has been awarded the construction management contract for the academic complex, based on designs by J.L. Richards of Ottawa.

EllisDon project superintendent Luis De Matos says the first stages of the work are either complete or under-way. These include construction of 65,000 sq. ft. of temporary swing space “to accommodate relocated laboratory and classrooms for one school year for each phase of construction,” he said.

With the swing space complete (work started in 2010), the actual building renovations have commenced, staged in modules to allow the college to continue operating while the renovation work proceeds.

De Matos says so far the project is moving along well. “Working with the trades on this project has been wonderful,” he says. “EllisDon prides itself on building on great re-

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New Penthouse floor on RMC Project for HVAC and Mechanical



EllisDon

Continued from page OCRD4

relationships and it shows on our sites.

“On this particular site, the foreman communicate regularly and assist each other in resolving site issues. In co-operating with each other and EllisDon we are able to maintain our schedule and overcome larger issues in a timely manner.”

De Matos says the project goals include:

- Improving indoor air quality and containment of hazardous laboratory operations;
- Enhancing performance of perimeter heating and building envelope system to improve comfort;
- Upgrading laboratory fume hood system;
- Improving level of fire protection.

The project scope includes improved accessibility with new accessible washrooms, “areas of refuge” and a fire-fighting elevator, upgrading door hardware and configuration, and new exterior ramps and accessible entrance.

Other elements of the project include:

- Upgrading the site to current seismic standards;
- Improving IT infrastructure and power distribution for office spaces;
- Upgrading perimeter heating system and HVAC controls
- Replacing the building envelope with a new curtain wall
- New sprinkler systems, fume hoods and dedicated ventilation systems, supplemental air supply and exhaust systems and other improvements.

“The project includes the complete upgrade to the building envelope, HVAC and electrical systems including mechanical

penthouse additions for six buildings,” says De Matos. “The existing precast concrete panel and aluminium windows are being removed and replaced with a curtain-wall system with structural steel seismic bracing being added at each building face. Also, the work includes elevator mechanizations, washroom upgrades, IT systems and communication rooms.”

As EllisDon works on the academic complex project, other projects on the base include renovation of the RMC dormitories, construction of a new health-science centre, base site infrastructure improvements, additional training accommodations and other initiatives.

“CFB Kingston has expanded in recent years with the establishment of new units and the expansion of some of the units residing within the base such as the Canadian forces School of Communications and Electronics,” Lt. (N) Rousseau said. This work builds on history dating back to the War of 1812 and even earlier.

“Since the 1800s, the military has employed trades people to build and maintain its infrastructure,” CFB background documentation says. “Today, millions of dollars go into defence construction each year on the base.”

Today, the Kingston Garrison has more than 34 lodger units and encompasses the army, navy, air force and joint community, making it one of the most diverse and unique bases in Canada, say Canadian Forces officials. With almost 9,000 military and civilian employees, CFB Kingston is the city’s largest employer – and many contract employees are hired either full or part-time for their expertise and technical skills.

A complete list of defence infrastructure projects at CFB Kingston is available online at <http://www.forces.gc.ca/site/pri/4/bases/kingston-eng.asp>



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\$10M project to be completed by 2012

Fort Henry Discovery Centre contractor selection under-way

STAFF WRITER – The Ontario Construction Report

Kingston's tourism – and construction – industry will get a boost with the new Fort Henry Discovery Centre, a \$10 million project to be completed by the spring of 2012.

Pre-qualified general contractors for the project are: J.C. Supher Construction Ltd., R.J. Bourgon & Associates Ltd., Al Langman Construction, T.A. Andre & Sons and Peak Engineering and Construction Ltd. The contractor for the project is expected to be selected shortly after this issue of Ontario Construction Report goes to press.

Project managers are MHPM Project Managers Inc. and the architect is +VG Architects (the Ventin Group) from Toronto.

The visitor centre will include interactive exhibits, a cafeteria and a gift shop.

"It is important that we share the rich history of our community with others," said John Gerretsen, MPP, Kingston

and The Islands. "The Discovery Centre at Fort Henry will encourage new learning and recreational opportunities for Kingston residents and visitors alike."

In an article in the Kingston Whig Standard, lead architect Peter Berton said the centre's design is unimposing, to compliment the historic fort.

"The idea is (for the centre) to be lower than the fort," Berton is quoted as saying. "Its benign from the parking lot side, but when you walk in the view will be open."

A background document says the new visitor centre "will provide an inviting, informative and compelling environment to orient visitors prior to entering the site."

Key themes will encompass early Kingston, the Fort's creation, its role in the War of 1812 and in defending Canada, its reconstruction, more modern day uses and its distinctions as a National Heritage Site and UNESCO World Heritage Site (designation earned in 2007 in conjunction with the Rideau Canal and Kingston fortifications.)

Kingston, Canada

New projects and growth create construction industry opportunities

In May's issue, Ontario Construction Report described how Kingston's economy is diversifying and growing with innovation and exciting business opportunities, with a focus on the expansion at the Royal Military College.

In this issue, we review Fuller Construction Group's achievements in building the new Correctional Service Canada regional headquarters and the Frontenac Children's Aid Society headquarters.

Tourism is also thriving, with the impending construction of a new Fort Henry Discovery Centre.

For more information about opportunities in Kingston, visit the Kingston Economic Development Corporation (KEDCO) site at www.kingstoncanada.com.

Proud to be part of the history and future of Kingston.



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Kingston and The Islands



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Fuller Construction Group in Kingston

Success in building new Correctional Services Canada regional headquarters and Frontenac Children's Aid Society headquarters



FCAS project, May 2011



CSC RHQ project, November 2010.
A. Santin Masonry installing brick veneer.



Project manager Tim Ralph and field operations manager Gerry Nault.



Rody Ingola, site superintendent
FCAS project

STAFF WRITER – The Ontario Construction Report

The Fuller Construction Group's successful co-ordination of two public-sector projects in the Kingston area reflects the company's multi-generation experience in eastern Ontario – and its capacity to be competitive and innovative in a diversity of environments.

Both the new regional headquarters building for Correctional Services Canada and the Frontenac Children's Aid Society facility on Division St. are open, fixed bid, public tender projects, says Gerry Nault, field operations manager for Thomas Fuller Construction Co. Ltd. This means that Fuller had to compete on price, against several other qualified builders including local Kingston contractors.

However, Fuller's decades of experience – company founder Thomas Fuller's grandfather designed the original Parliamentary Centre Block and Library and other projects as the chief architect of the Dominion of Canada – coupled with a competent project management and supervisory team and excellent rapport with local sub-trades and suppliers have allowed both projects to proceed successfully.

"We were fortunate in that one of our experienced superintendents, Rody Ingola, wanted to go to Kingston, travelling from Cornwall each day," Nault said. As structural work wrapped up on the Correctional Services Canada building, Ingola moved over to oversee the CAS project, and Mike Spencer took over the project as superintendent to get the structure enclosed and to ultimately finish the project.

Both projects have encountered challenges and special construction issues, says project manager Tim Ralph. However, the distinctive solutions for these issues show how Fuller can adapt to surprises and difficult site conditions.

Here are more detailed reports on each of the projects:

Correctional Service Canada regional headquarters

This \$9.58 million project required Fuller to deconstruct a heritage building on the Kingston CSC site, saving the limestone for use as a feature wall in front of the new building. The replacement 60,000 sq. ft., three storey office building also includes a pedestrian link to another building on the site.

"The original building was referred to as the coach house; it had a number of functions over the years," said Ralph. "We had a heritage consultant document the building's construction and its diverse history."

Part of the original tender included removing contaminated soil, the extent of which was unknown. This became a larger task than anyone expected.

Tim Ralph said the problem is that, even with a proper geotechnical investigation, it is very difficult to determine the extent of any soil contamination. "No one knew what was really under the ground; there may have been a limestone quarry in the area. Fill used to backfill this area years ago may have contained metals and other things that needed to be cleaned up."

Then, as it came time to prepare the foundations, using rock anchors on the bedrock, Fuller needed to work with consultants and engineers to ensure they were tested and approved. This caused some delays – but Ralph said Fuller has been able to make up for the lost time. "Once we were out of the ground, we worked closely with Bellai Bros. (the concrete subcontractor)

KINGSTON

Continued from page OCRD2

tor), to get the concrete structure up and closed in for the fall, and we hit that goal.”

Nault says he has been impressed with the quality of the local subcontractors in the Kingston area who bid their portion of the work competitively and ensured the project could move forward in a timely manner.

Frontenac Children’s Aid Society headquarters

Fuller competed against five other bidders for this 80,000 sq. ft. building on a 225,000 sq. m. site with a project value of \$17,530,000, Nault says.

“I am very excited at the prospect of working with Fuller Construction,” said Frontenac CAS executive director Raymond Muldoon when Fuller received the go-ahead in October, 2010. “This firm has been involved in hundreds of large scale projects including many community based projects. Their proven track record with similar facilities will allow us to become a



Mike Spencer, site superintendent at the CSC RHQ project

sustainable hub of children’s services offering an ideal solution for the families we serve,” he said.

Soon after starting work, Fuller discovered some special challenges because of difficult soil conditions and an exceptionally wet winter.

“We had challenges with the foundations,” Nault said. “The type of rock and

the way the excavation and foundations were designed with pier footings, foundation walls and grade beams, it made for challenges in the fractured rock. The layers of rock don’t always break out in the designated design depth you would like to find.”

“We couldn’t use the typical concrete forms,” he said. “Every panel had to be different. This required a lot of field engi-

neering – constantly shooting elevations and placing grid lines.”

For this project, Fuller used its own forces for much of the labour. A key sub trade which had bid low, pulled its bid after the tenders closed. This required some additional co-ordination on Fuller’s part, “but we were able to complete the foundation using a combination of own forces and Maurice’s Masonry and Forming Ltd.,” Nault said.

“Yes, it complicates your life, but if you take a job you commit to finish it,” he said. “These are things that happen on every job; nothing is ever perfect and straightforward.”

However, Nault and Ralph say they are fortunate in having superintendent Roddy Ingola in the area, who moved from the CSC project to the Children’s Aid site. As well, on-site project co-ordinator John Muller “has proven to be very valuable” because of his knowledge of site requirements, especially for LEED certification,

Please see page OCR D4

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CSC RHQ project, May 2011

Continued from page OCRD3

and his ability to make sure shop drawing submittals are handled in a timely manner.

“We kept things on schedule, avoiding delays in waiting for approvals,” Nault said.

With the foundation in order and structural steel 95

per cent complete, “we are starting to work on the external walls and masonry. “The basement slabs are poured and we’re looking to pour some ground floor and second and third floor slabs in the near future.”

For this project, while local trades are doing much of the work, some trades from the Toronto area have participated, especially those responsible for steel, curtain walls, glazing and insulation. “Kingston isn’t too far from Toronto. (These trades) wouldn’t come to Ottawa, but they can work there, often sending their crews to live in Kingston for a week or two,” Nault said.

The building features environmental features that should qualify it for a LEED Gold certification, including efficient mechanical systems with heat recovery units, a green roof, motorized window shades and grey-water cisterns to recycle water for toilets, said Tim Ralph.

“The exterior curtain walls and shades, it all ties



FCAS Project, shaft wall construction

in, it is going to be an interesting building to complete,” Nault said. “There are lots of different materials and methods used. It’s a pretty intricate facade.”

As well, Fuller’s contract includes site development

including the parking lot, terraces, exterior fences, garden walls, retaining walls and more, he said.

He says Fuller is enjoying good relationships with the Kingston-based Shoalts and Zaback Architects Ltd.

and the sub-trades. “We’re there as a team,” he said. “We have a long road ahead and we are fortunate to have good relationships.”

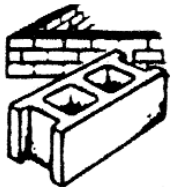
The project is due to be completed in the spring of 2012.

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KINGSTON, CANADA

Bombardier builds monorail test track for massive international projects in Kingston



BOMBARDIER INNOVIA Monorail 300 system in São Paulo, Brazil.

Bombardier Transportation's Millhaven (Kingston, Ontario) site is home to Bombardier's worldwide Centre for Competence for Mass Transit and Advanced Rapid Transit Systems

STAFF WRITER – The Ontario Construction Report

Bombardier has started work on a new test track in Kingston for monorail trains, part of a \$1.44 billion (US) contract to build a 24-kilometre system in Sao Paulo, Brazil.

The massive project, where Bombardier is teaming up with two concession partners (Bombardier's share of the contract is \$816 million) requires testing facilities, which are under construction in Kingston. (The facilities will also be used for existing contracts in Saudi Arabia and Brazil.)

The 1.85 k. long monorail test track is scheduled for completion in November 2011.

Bombardier is using local talent and businesses for the project, says the Kingston Economic Development Corporation (KEDCO) in a news re-

lease. "Local businesses involved in the development of the new test track include McCormick Rankin Corp, who are providing engineering services for the design and construction; McNeely Engineering are working on the steel frame maintenance building; Hopkins, Cormier & Chitty Consultants for precision alignment of track construction; Anchor Concrete who is manufacturing the pre-cast test beams; and, Len Corcoran Excavating for site servicing and construction of the track pier foundations and installation of the track beam," KEDCO says. "Bombardier is also continuing their strong relationship with Queen's University and is finalizing a new project agreement to design, instrument and test new beam designs."

Please see page OCR B2



Ziad Rizk - Bombardier
Photo Credit Michael Lea The Whig Standard

BOMBARDIER

“The construction of the new monorail test track demonstrates that Bombardier remains committed to developing the Kingston site as the centre of competence for mass transit systems,” said Ziad Rizk, Bombardier’s engineering director and site manager. “This expansion will help us to sustain our role as a centre of transit excellence around the world. We are proud to hire local companies for most of the design and construction phase.”

Bombardier Transportation’s Millhaven facility employs 250 full-time employees. The site includes a 16,000 sq. ft. office and 20,000 sq. ft. testing facility.

In October 2010, Bombardier received a \$1,500,000 grant through the provincial Eastern Ontario Development Fund (EODF) to upgrade and expand the facility. EODF announced further funding support in June, 2011 which will support the creation of 20 new jobs over the next three years. These projects ensure that Bombardier Transportation is well-positioned to continue to expand their presence in emerging transit markets worldwide, the KEDCO news release says.



KINGSTON

Peak Engineering & Construction's largest project succeeds with design/build co-operation



\$27M Invista Centre in Kingston achieves LEED Gold certification

HEATHER SEFTEL-KIRK – The Ontario Construction Report Special Feature

Peak Engineering & Construction Ltd. has scaled new achievement heights in completing Kingston's new \$27-million Invista Centre. The design-build project, the largest recreation facility in the Brighton contractor's history, required an exceptional level of creativity and co-ordination and has exceeded everyone's expectations.

The 179,617 sq. ft. multi-purpose recreational facility includes four ice pads with varying intended uses; a community centre; fitness centre; multi-purposes spaces; administrative space; the usual washrooms, change rooms and the like; and a mini-rink with dasher boards the same as those used on the ice pads, intended for casual mini-stick use.

"The theme of the facility is very family-oriented," says Peak Engineering partner Tony Jeronimus. "BBA Architects and the entire design team took this to heart and, recognizing that families with one child playing hockey or figure skating, may have other children along who need something to do, added a mini-play rink."



Peak Engineering & Construction

Continued from page OCRB3

The original design called for a LEED Silver designation but the design-build team decided to achieve higher standards. “Right from the start the owners, designers, builder and user groups were involved in

the process and discussions, part of which were around creating an environmentally sensitive facility,” Jeronimus said. “Looking at what we had already, we came to an agreement that we were so close we would push to make this project Gold, and we did.”

Design elements that helped the project achieve LEED Gold include a cistern system used for collecting grey water; the reclamation of heat from the refrigeration system and extensive use of natural light.



“That’s one comment we’ve heard a lot already – how light and airy the building feels. That’s a real credit to the architects in thinking outside the box and making the space so unique and welcoming.”

Jeronimus said Invista Centre windows are of a higher-than-standard quality and use special glazing to allow the light through but maintain their energy efficiency.

With four pads, each space is intended for slightly different use. For example, the northwest pad, intended for figure skating, is adjacent to a leisure skate room with a charming fireplace. “Understanding the use of the facility and each of the components we were able to link these separate spaces much more closely than we would have had this been a pad for hockey.”

The project architects developed a curved roof design to help reduce the overall scale of the massive four-pad arena while providing vaulted ceiling spaces over each of the pads.

To execute this unique design, Peak teamed up with American Builders Company who provided the pre-engineered curved roof structure.

Despite the challenge of building a four-pad facility, which Peak had never done before, Peak completed the project on time and, more importantly, without a lost-time injury. “For a project of this size to be completely injury free is wonderful. Canadian

winters can add elements of risk and it really speaks volumes to the quality and experience of the trades who work on site that we can make this statement.”

Peak’s final project report notes: “With every project we hope the final result is something that will turn out to be a positive experience for the user. Based on what we’re hearing already and the use we’re seeing, we can already say that was achieved. The fact that we were able to take a LEED Silver design and ramp it up to achieve LEED Gold is a real positive and speaks to the collaboration and co-operative approach of all the stakeholders.”

Peak Engineering & Construction worked with professional services, designers and sub-trades to co-ordinate the project including the Architects/Structural Engineers/Landscape Architect: Barry-Bryan Associates (1991) Limited; Kirkland Engineering Ltd. for Electrical Engineering; Atira Engineering for Mechanical Engineering; Hughes Condon Marler: Architects for LEED Consulting and J.L. Richards & Associates for Civil Consulting. Sub trades (advertising in this feature) included Shaw’s Plumbing & Heating; Diamond Electrical Contracting and CIMCO Refrigeration. City of Kingston representatives included Barclay Mayhew and Christine Hannaford.

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Peak Engineering & Construction

Continued from page OCRB4

Jeronimus also complemented the work of Peak Construction’s site supervisor Gord DeVries and project manager Paul MacDonald. “People like Gord and Paul are our best marketing means, showing the client and sub trades what Peak is all about and our approach to a successful project.”

Dan Jennings from Diamond Electrical Contracting, a company who specializes in design builds for commercial and institutional projects in eastern Ontario, says he enjoyed working on the project.

“We’ve done several projects with Peak over the past 12 years and can’t say enough

about what a pleasure they are to work with. They are a local company who like using local trades and are very inclusive. They run each project as a team approach right from the start.”

Peak Engineering & Construction has earned a reputation for excellence in construction and engineering in eastern Ontario. The company advocates an integrated development process - from the design team (building owners, architects, engineers and consultants); to the construction team (materials manufacturers, contractors, waste managers); to the maintenance staff and building occupants – a process that maximizes the owner’s return on investment.

For more information about Peak, visit their web link at <http://www.peakltd.ca>.



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NORR designs multi-million dollar prison expansion construction projects

Three general contractors win work, creating opportunities for sub trades in eastern and central Ontario




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STAFF WRITER – The OCR Construction Report Special Feature

With the uncertainties of the current economic climate, it is good news for the construction industry that NORR architects, engineers and planners Toronto, Kingston, and Ottawa are undertaking a wide variety of work, spanning the enormous Union Station redevelopment in Toronto to detailed historical restorations at Royal Military College and Canadian Forces Base Kingston.

The Kingston and Ottawa offices are continuing their design services to Correctional Service of Canada (delivered through Public Works and Government Services Canada (PSWGC)) for three new 50 bed minimum security housing units. These new facilities are to be located at Frontenac Institution, Kingston, Pittsburgh Institution, Joyceville, and Beaver Creek Institution, Gravenhurst slated for bid call in the spring of 2012. Budget for each is in the range of \$5 to \$7 million.

This work follows on major NORR projects at Bath Institution and Collins Bay Institution that were tendered in the fall 2011 (released on Merx by PWGSC). The new projects differ from the previous medium and maximum security designs that were predominately concrete and concrete block construction and employed extensive heavy security components. It is anticipated that this round of bidding for correctional service work will attract a similar broad range of general contractor and trade bidders based on the rigorous but open tendering standards of the National Master Specifications.

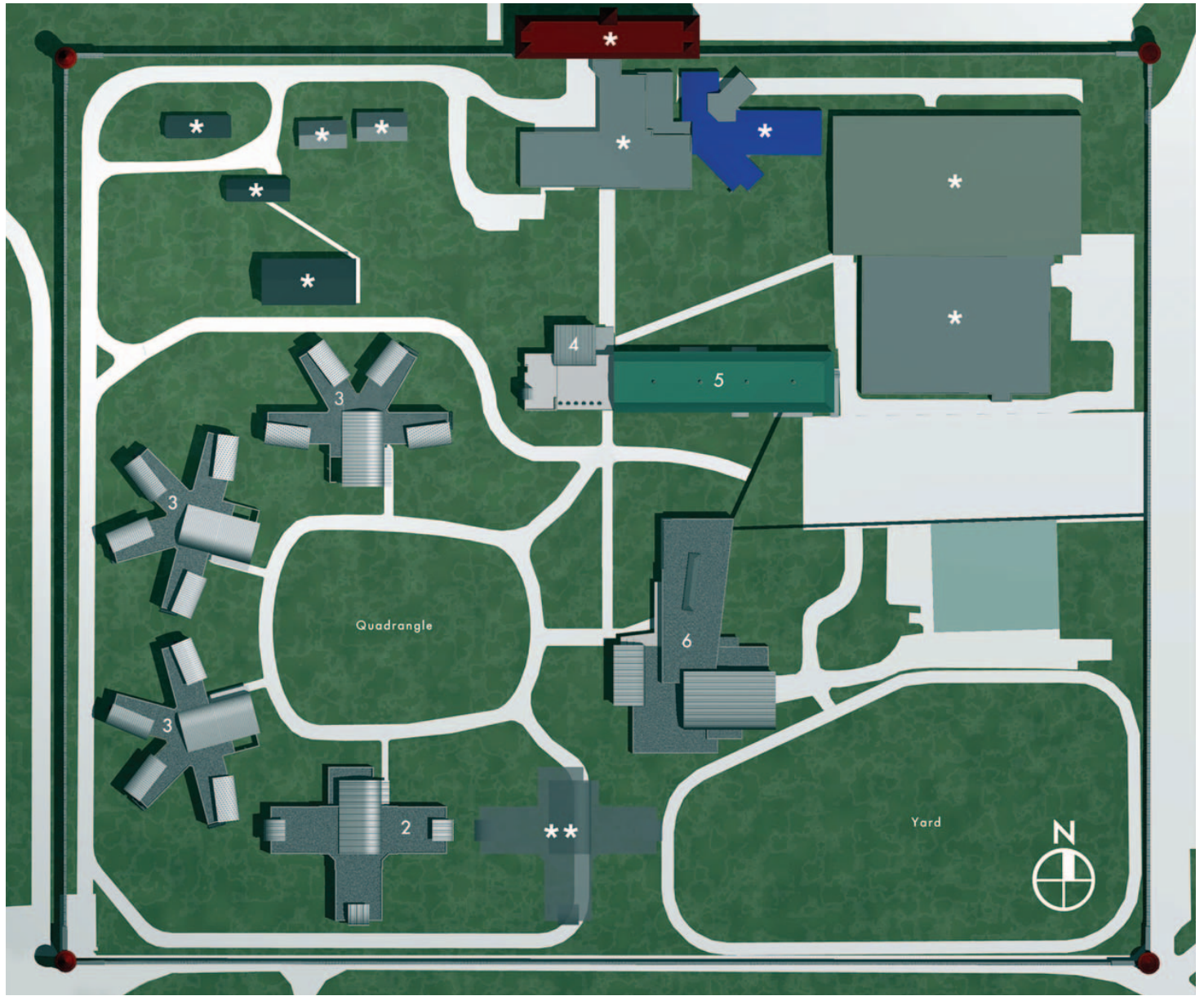
NORR

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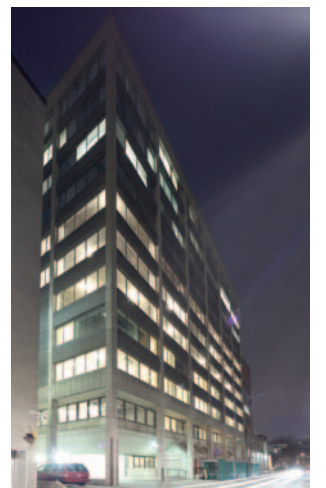
The new 50 bed units are a wood and steel framed construction, similar to the 48 bed Portsmouth parole housing that was tendered in late summer 2011 for a site adjacent to Collins Bay Institution in Kingston. Revisions to the prototype design were undertaken by CSC in British Columbia to convert the Portsmouth layout to a minimum security residence increased to 50 beds. It was then reissued to NORR for further re-design to meet Ontario Region technical and code standards.

Each project site requires considerable adaptation of the prototype design. At Frontenac Institution, the building will be located on weaker fill material soils, set partially into the water table. The design is likely to incorporate grade beams set on driven piles for design's three residential pods and central office/training area. There is an extensive waterproofing system for the central core basement floor and walls. Excavation is likely to require a dewatering program.

The 50 bed unit at the Pittsburgh Institution will be built partially into a granite rock base. The design will include a canteen with capacity for handling of bulk products on delivery palettes. The design is also be augmented to increase the capacity



Please see page OCR 11



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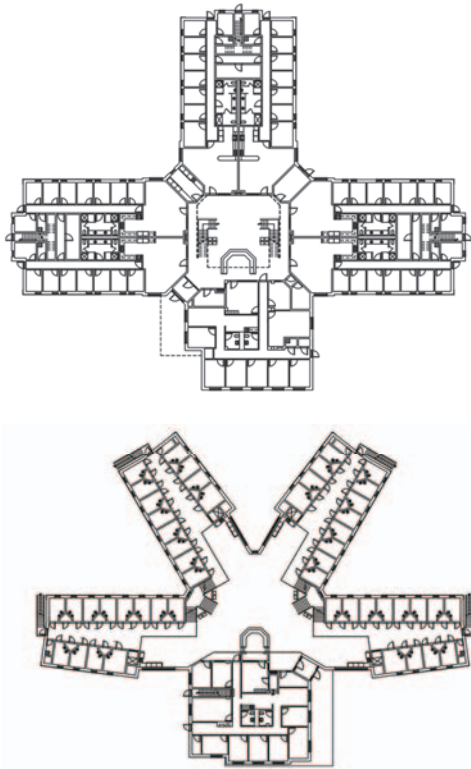
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for the number of inmates now requiring wheel chair accessibility. Similarly Beaver Creek will have significant foundation adaptation requirements.

The NORR Kingston office is leading the architectural design work for Frontenac and Pittsburgh Institution while the Toronto office of NORR will lead the Beaver Creek design as well as structural design for all of the 50 bed units. NORR's Ottawa office will be providing full mechanical and electrical design for all of the units. Genivar's Kingston office provides the civil engineering services.

NORR Kingston office principal David Jefferies says, while contractors will benefit from security and prison experience, specialized prison construction qualifications certainly aren't mandatory for this type of work – and the security clearance requirements will be attainable by most contractors. "Staff will have to be cleared for fairly rudimentary security requirements," he said. "Basically, builders are expected to not come within 10 feet of a secure fenced area.

Obviously correctional officials don't want outside tools or drugs getting into the hands of inmates but the security clearance for most of the work involves CSC-CPIC authorization, he said.



The projects have clear and easy-to-understand specifications and drawings, so general contractors and sub trades should have little trouble in pricing and assessing their costs. Some supplies, such as specific toilets designed for the prison setting, need to be ordered from specialized suppliers, with a fairly long lead time for delivery, so these elements must be considered in the bidding

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Collins Bay Institution – A Correctional Services Canada Facility

STAFF WRITER

– The Ontario Construction Report Special Feature

Constructed in 1930, Collins Bay Institution is a maximum security facility currently accommodating 372 male inmates. After the completion of a renovation, beginning in January 2012 and expected to wrap up in just under two years, the facility will be able to house another 96 prisoners.

Elite Construction Inc. was awarded the contract to build the additional facility, expected to come in at just under \$20 million. Director of construction Guido Paniccia says his company is well positioned to take on the intricacies of this project. "We've been in business with a focus on ICI projects for 25 years. We've built everything from schools to courthouses and detention centres so we have experience in this particular area. We've begun mobilizing on the site now and expect to begin just after the new year."

Paniccia says one of the most unusual challenges on this project will be ensuring security. "Working on an existing prison will pose higher than normal security situations. All staff must have security clearance through the RCMP and regional authorities; and all workers will go through an orientation before they begin work on the site outlining the lists of what they can and cannot do."

Some of the cannot-dos include smoking on site or bringing prescription medications on site.

Paniccia says throughout most of the project the construction will be somewhat self-contained with an almost separate entrance and that the integration with the existing prison won't happen until later in the project.

The newly-constructed 96 cells will be cast in poured concrete, with specialized detention hardware sourced in Toronto and the U.S. "Due to the nature of this facility hardware must meet rigorous standards. There is also a lot of attention paid to ductwork and drainage. Underground drainage, roof hatches and ducts will have steel bars installed in them so they are impervious to escape. Ductwork is reserved for highly visible areas and other areas like cells and private areas are heated and cooled using specific means."

Paniccia says Elite believes strongly in growing the local economies where they work so most of the materials and subtrades will come from the Kingston area. "We'll have a staff of three on site and at peak, expect over 200 workers involved on the project; most of whom will be from the Kingston area."

Elite is also currently constructing the \$120 million West Don lands early works project, which is the site for the Pan Am Athlete's Village to be used for the Toronto 2015 Pan/Parapan American Games. For more information on Elite Construction, visit eliteconstructioninc.com.



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NORR

Continued from page OCR11

process, Jefferies says, but again the process here is quite straightforward and there is little mystery about what is required for the work.

To make things easier, Jefferies says the new projects are based on prototypes that have been successfully built. “You can see right away what we need and want and un-

derstand the detail work required. There obviously is a need for some specialty metals for stairs, handrails and the like, but all of this is quite well understood and the specifications are easy to follow. “Clearly, in designing and building this sort of project, you need to meet the criteria. Prison installations require a higher degree of durability and obviously parts and components need to be designed so they cannot be easily dismantled.”



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Current prison projects awarded for construction

STAFF WRITER

– The OCR Construction Report Special Feature

Here a description of the various NORR designs that have completed tender, with construction to start imminently.

Bondfield Construction, Elite Construction and Quad Pro Construction from the GTA area have each won contracts valued at about \$20 million each. The contractors are mobilizing and co-ordinating their sub-trades and suppliers.

Maximum security direct observation cell unit, Collins Bay Institution

This design has a two level cast in place concrete structure with four cell block wings surrounding a central security control station and fifth wing providing offices and communal activity rooms. Incorporating a maximum security unit into the combined facilities of Collins Bay and adjacent Frontenac Institutions, the unit recognizes a need for each institution to have the capacity to respond to changes in inmate behavior without having to resort to transfers outside the institution.

In each of the four maximum security wings there are double level cell ranges with 12 cell units on each level. The upper level has a stair connecting to the lower level leading to a segregated communal dining and ‘day’ room area.

One wheelchair accessible cell is provided on the lower level of each cell range. There are two showers on each level of a cell range. Inmate circulation can be strictly controlled in the maximum security design. Inmates can be called from their cells and directed to segregated communal interior and exterior recreation areas fenced from the remainder of the medium security portions of the institution.

The fifth wing contains staff offices and secure multipurpose rooms to be used for training and recreational activities for qualified inmates. Offices also include spaces for inmate interviews with correctional services staff and a computer room.

Medium security direct observation cell unit, Bath Institution

The medium security cell units have a similar four-range pinwheel floor plan pattern to the maximum security cell unit. In this design the walls are constructed of filled and reinforced concrete block. Similar to the maximum security units there are two levels on each cell range with 12 units each. NORR architectural and structural groups are working with Genivar’s Kingston office for civil, mechanical and electrical engineering.

One major difference between the medium and maximum security designs is that the cell range walls are splayed in the medium security layout. In the medium security facilities, while the guard control station is enclosed there can be considerably more interaction between guards and inmates. Prison staff must be able to view down the range to visually assess the situation on a range before entering.

The maximum security design relies more on electronic monitoring and limited guard inmate interaction. While the cell units are designed for single beds, provision is made to add a second bed to each unit if double bunking is required at some point in the future.

The colour schemes for contemporary prison design incorporate brighter colours and more visually engaging floor and wall patterns. This reflects efforts to achieve improved living and working environments for inmates and correctional service staff alike. The ultimate objective being a safe environment that contributes to more effective rehabilitation.

Medium security responsibility housing unit – Bath Institution

In the responsibility housing units, inmates who have demonstrated an appropriate level of behavior will be permitted to live in a single room with study desk and share a common washrooms, kitchen and living area with seven other inmates.

The floor plate for these units is divided into three wings set in a cruciform shape with each wing segregated into seven-bed units. Each of the living areas looks out onto a two storey common area with open control post. Behind the open control post on the main entry level there are office meeting and interview rooms for prison staff.

Furniture in the responsibility housing units employs laminate and wood construction presenting a more naturalized setting. Immediately outside the responsibility unit front entrance is a concrete pad for tables and seating.

There is extensive use of durable sheet vinyl flooring throughout the projects. For the medium security cell and housing units, bold colours and inlaid floor patterns are coordinated with the door locations and painted ceiling mounted ductwork.

Parole housing prototype

The new Portsmouth Community Correctional Centre (PCCC) will be located on federal land at the Collins Bay Institution in Kingston. Its purpose is to address the immediate need for an increase in accommodations serving as transitional space for parolees and other longer term residents reintegrating back into mainstream society.

The new 2,000 sq. m. PCCC will house a maximum of 48 residents at any given time. The two-storey residential building is organized around housing suites for eight residents each with private bedrooms that share central common living, laundry and dining facilities. Program and meeting rooms are located near the main lobby for residential use where residents can meet with their parole officers and other guests.

The front reception desk staffed 24/7, will monitor people coming and going, behind which the parole offices and administration areas will be located and designed with future horizontal expansion in mind.