Oakville Trafalgar Memorial Hospital

by YVAN MARSTON

The first thing patients will notice about the Oakville Trafalgar Memorial Hospital’s emergency department is the size of its waiting room. “It’s tiny,” says Bill Bailey with a sweep of the hand indicating an artfully partitioned seating area with chairs for little more than 20. At first blush it’s surprising for a hospital built to serve a community of 180,000, but there’s a method to it. “It’s designed to process patients to triage rooms more efficiently,” explains Bailey, the hospital’s VP of redevelopment.

The series of five triage/registration rooms are aligned and serviced by a back corridor. Patients remain in the triage room while staff travel through this backspace to come to them, he says. Once triaged and registered, they are moved to an internal waiting room or one of the department’s 64 examination rooms, each equipped with swivelable glass that allows privacy and enables better infection control than curtains or blinds.

Designing a new hospital from the ground up offers a number of opportunities to rethink how these spaces function. As this design-build-finance-maintain (DBFM) project came to life in time for a December opening, staff implemented much of the learning they had been doing over the past three years to adapt to a facility triple the size of the Oakville hospital they left behind.

Set on a 50-acre site some 10-kilometres west of the legacy Oakville Trafalgar Memorial Hospital, the new facility features the capacity for 457 inpatient beds (up from the 340 hosted in the old site), enhanced patient privacy and infection control measures – including 80 per cent single-patient rooms – and patient-centred details like oversized windows, patient-controlled lighting and temperature, and pull-out couches in some patient rooms for family members to stay overnight.

From a clinical perspective, the hospital’s programs have also expanded to include a cancer clinic, stress echocardiography tests for heart disease, an endoscopy ultrasound for imaging digestive tracts and surrounding tissue and organs.

With its expanded service mandate, the initial thought was to build a campus-like environment. But a campus this early in its development could prove too spread out to be practical, explains John Christie, a partner at Parkin Architects, the firm in charge of designing the project and developing the building’s clinical programming.

Instead, the winning bid, from a consortium consisting of Fengate, Carillion and EllisDon, and Parkin Architects in joint venture with Adamson Associates Architects as the site planning and exterior envelope designers, opted for a complex made up of three buildings and a parking garage.

To the north sits the five-storey continuing care and rehabilitation building. Clad in a terracotta-coloured precast concrete panel system that evokes a residential palette, this structure also houses a number of outpatient programs such as nephrology and includes a mechanical penthouse.

Standing prominently to the south of the rehab building is a 10-storey inpatient tower that houses patient rooms, operating suites as well as pre- and post-operative support functions. Behind this tower, a four-storey diagnostic imaging building forms the west side’s podium. This is where services such as emergency care, ambulatory care, maternal and child services as well as adult mental health are housed.

And there’s a fourth element: a two-storey lobby that connects the space between the rehab building and the main patient tower.

“While the facility has been constructed to meet and exceed the needs of patients today, the hospital has been designed to evolve and scale to accommodate technocial innovation and expansion in the future,” says Edmund Mahabir, executive VP, PPP Infrastructure Development and Construction at Carillion. “Having the opportunity to contribute and collaborate at all stages of the process and influence the finished building enables our team to manage a well-designed and well-structured social infrastructure project that will offer a lasting effect and benefit to the communities it serves for the long term.”

The main lobby is defined by its calming palette of colours and the warm tones of its materials, explains Domenic Virdo, a partner at Adamson Associates Architects and the project’s design manager.

Upon entering from the east, the expansive, light-filled space draws warmth from the curved cherry wood-coloured laminate wall that forms the exterior of the auditorium. Directly across from it stands a full-height hearth made of Ontario split-faced stone and features a long gas fireplace insert.

Complementing these elements is the terrazzo floor. An imitated with subtle waves of blue and white, it draws its inspiration from the nearby Sixteen Mile Creek. “The notion was to inject a series of natural materials into the design here and throughout the hospital – not just on the public side but in the back of house space where we could create a positive work environment to attract and retain staff,” he says.

From a structural point of view, hospitals present their own set of challenges because they are considered post disaster buildings, explains Jennifer Watson, the project engineer for structural consultants Read Jones Christoffersen.

Designing for post disaster involves many more requirements, she explains, for example structural walls, such as those surrounds a air well have to continue all the way to the foundation to make them far more robust.

LOCATION
3001 Hospital Gate, Oakville, Ontario

AGENCY RESPONSIBLE
Infrastructure Ontario

CLIENT
Halton Healthcare

PLANNING & DESIGN CONSULTANT
Stantec

ARCHITECTS
Parkin Architects Limited / Adamson Associates Architects

DESIGN BUILD FINANCE
EllisDon Corporation / Carillion Canada Inc.

MAINTAIN CONTRACTOR
HH Angus & Associates Ltd. / Coossey Engineering Ltd.

MECHANICAL CONSULTANTS
Mulvey & Banani International Inc.

STRUCTURAL CONSULTANTS
Stephenson Engineering / Read Jones Christoffersen

ELECTRICAL CONSULTANT
Stantec

TOTAL SIZE
1.6 million square feet

TOTAL COST
$2.7 billion ($1 billion for construction; $1.7 billion for 30 year facility maintenance and lifecycle)

3001 Hospital Gate, Oakville, Ontario

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Her firm was responsible for the rehab and parking structure while Stephenson Engineering worked on the patient tower and diagnostic imaging building. And co-ordinating all the consultants and trades working on site was EllisDon’s team, which managed an aggressive schedule that saw the first footing poured in May of 2012 and substantial completion occur in July of 2015.

It was a 38-month full-court-press that saw a greenfield site turned into a 1.6-million-square-foot hospital, a 400,000-square-foot, six-storey parking garage and an expansive surface lot (together totalling more than 2,000 spaces). Not to mention the development of roadways in and around the complex and major infrastructure work such as the installation of an eight-foot-diameter sanitary line at a depth of 45 feet.

“The schedule was certainly a challenge but it was also the sheer size of the project,” says Jeff McKay, EllisDon’s senior project manager for the Oakville Trafalgar Memorial Hospital project. At its peak, the site saw 1,200 workers daily and throughout the duration a virtual village of construction trailers housed 150 office staff – many of whom worked for the long list of consultants on the job.

Managing the inherent complexity of the mechanical system figured prominently in the contribution of H. Angus, the project’s mechanical engineer and vertical transportation consultant. Work required the integration of systems across multiple engineering companies that produced various portions of the design, says principal-in-charge Paul Keenan.

As well, Keenan explains, the scale of the project required the use of a smoke control and venting system that used the building automation system for its control instead of the traditional fire alarm system.

Infrastructure Ontario’s senior VP of project delivery for healthcare, Yaprap Berktin offers further context for this DBFM – one of the two largest hospital projects in Ontario that have completed its patient transfer on December 13, 2015. Carillion, as the lead operator of the services joint venture with EllisDon, is responsible for primarily the general management services and the lifecycle for a period of 30-years. “We are delighted to be a key part of maintaining this new facility,” says Trevor Gard, Carillion VP, Services. “Our team is committed to delivering the highest quality service to Halton Health Services and the community it serves for the next three decades.”

As complicated as it is to complete a health care DBFM project, it can also have a complicated start. Massive undertakings such as this require the integration of a schedule that accommodates a number of players’ interests. In this case, Infrastructure Ontario’s procurement process, the Ministry of Health and Long-Term Care’s capital planning process, and the hospital’s own compliance team’s need to develop tender documents and specifications.

Even the municipality was involved because the work would occur on a greenfield where site services and land agreements needed to be sorted. Much of the work fell to a division of Stantec’s project delivery office.

“Our challenge was to integrate the requirements of all those parties into a workable plan,” explains Stantec’s John Wieser. “Once that was done and the project awarded, Wieser’s team began to work with the hospital on operational readiness so that when the consortium handed over the keys, the hospital’s staff could bring into practice all the methods of care delivery they had redesigned to function in the new space and at a new level.

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