

Healthcare /

Critical Care Pavilion

Jewish General Hospital

JODOIN
LAMARRE
PRATTE
ARCHITECTES

The firm Jodoin Lamarre Pratte architectes would like to warmly thank the team at the Jewish General Hospital for its valuable contribution throughout the development and realization of this major project.

“A project like the construction of a new pavilion is a unique opportunity, and it was an honour to assist clinical and support teams in this adventure, which, for me, lasted six years. Interestingly, current concerns about the environment are the same as those raised by Florence Nightingale in her book Notes on Nursing. Everyone is saying it: ‘The new pavilion is beautiful!’ The spaces for patients, families and professionals meet the needs of all, and I think the key to this success rests in the close collaboration between clinical teams and architects. This is the result of thousands of hours of work. And what a wonderful outcome! Natural light not only contributes to the well-being of patients, but also to that of the staff. Some people stated that they were happier coming to work and felt less tired at the end of the day. And patients call less often. Could this be due to the new proximity of the staff, individual rooms, or reduced noise? Or maybe it’s a combination of all these factors? In addition, in the neonatal intensive care unit, there is a marked decrease in physiological monitoring alarms since the move. The new environment is really having a positive effect on all our patients.

Of course, a project of this magnitude requires a great deal of listening from architects and engineers, so that they can understand user needs well enough to transpose them into an optimal environment for all (clinical and logistics staff). We are all very proud of the project. There were numerous people involved, and everyone was able to contribute in their own way. Without their involvement, I am sure we would not have achieved such success.”

— Joanne Côté, Director of the Transition Office and Associate
Director of Innovation, and Quantitative and
Prescriptive Analysis,
West-Central Montreal Health



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← General view, Légaré Street
↓ New main entrance opening onto the Agora





Project

Located in the heart of the cosmopolitan Côte-des-Neiges district in Montreal, this ambitious expansion project for the Jewish General Hospital brings together in a single building the hospital's critical, intensive, and emergency care operations. With a total area of 85,000 m², the new pavilion constitutes an expansion of close to 40% of the existing area of the hospital. In Quebec, this represents the first major modernization of a university hospital campus achieved by centralizing the components and advanced technologies of a contemporary hospital in a single new construction.

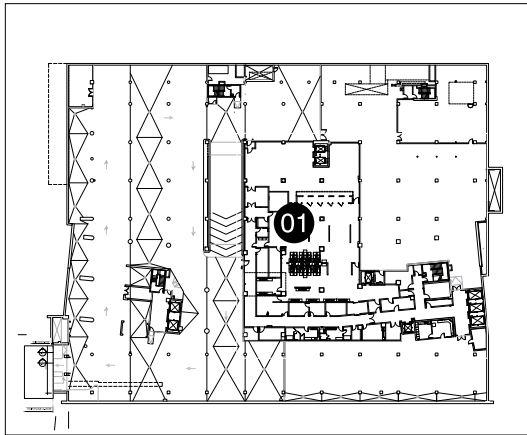
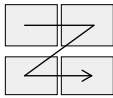
With the hospital's critical care functions now located in one building, the operation of the hospital campus is optimal. The facilities built between 1934 and 2009 retain less technically demanding functions, enriched as such in a sustainable manner. The new pavilion welcomes patients in an ultramodern space bathed in natural light, designed to maximize the effectiveness of treatments, services, and circulation, and to help control the spread of infection while maintaining the privacy, dignity, and safety of patients.

← Resting room for employees and medical staff, care unit

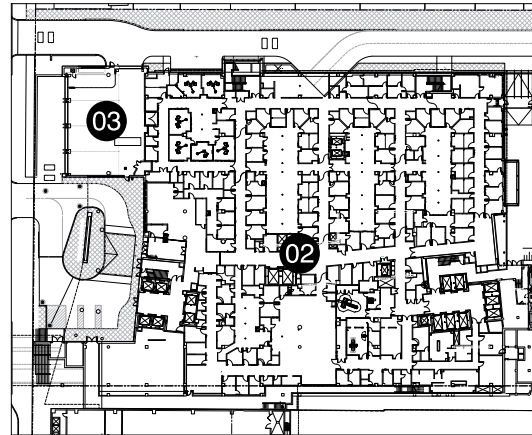
The program includes: an innovative emergency department inspired by the best practices in North America and the largest in the province; a surgical unit with 18 operating rooms; a day hospital; two floors of intensive and coronary care with privileged access to natural light; a 700 m² hemodynamics suite; the departments of obstetrics and neonatology; six floor of care units bringing together 152 single rooms, including one floor for 24 beds in isolation; a new sterilisation sector; a centralized supply sector for the entire institution; common areas (Agora, lobby, hall, food court, public washrooms); outpatient, clinical, therapeutic, and diagnostic services; customer service, archiving, logistics, and support services (workshops, receiving platform, shipping, purchasing); and food, administrative, and IT services.

Elevator lobby, care unit floor →
RAZ – Rapid Assessment Zone ↓

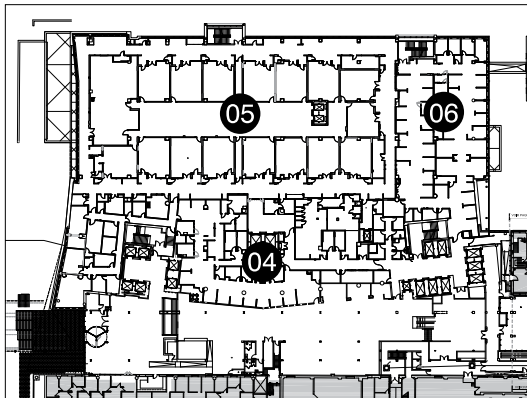




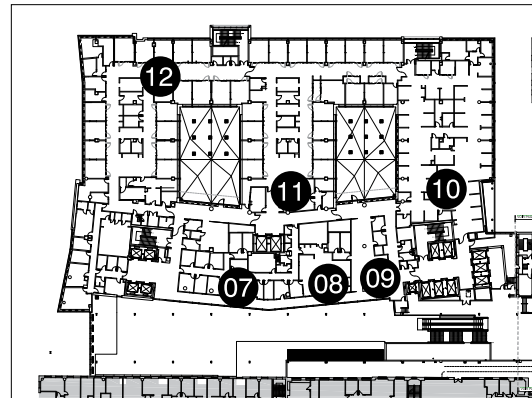
B4



B2



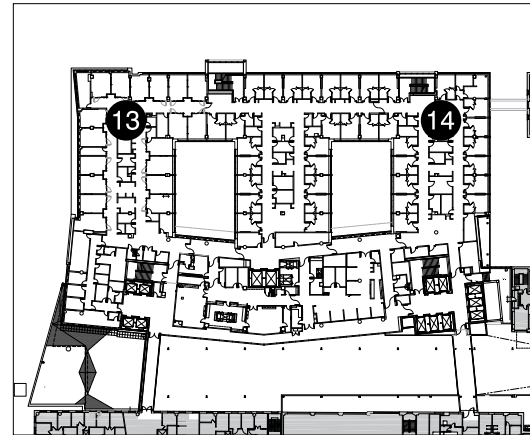
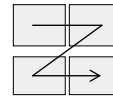
B1



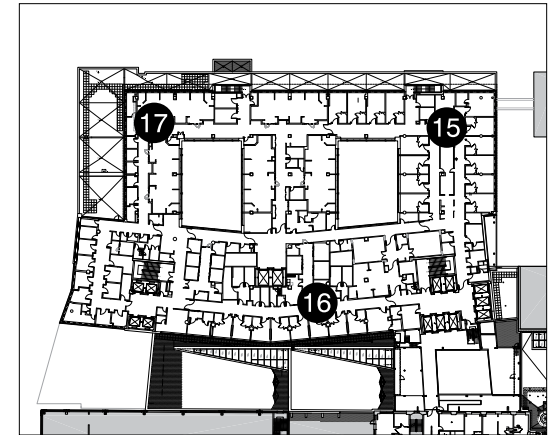
L1

- 01 Sterilisation
- 02 Emergency
- 03 Emergency – Closed Garage
- 04 Day Hospital – Medicine
- 05 Surgical Unit

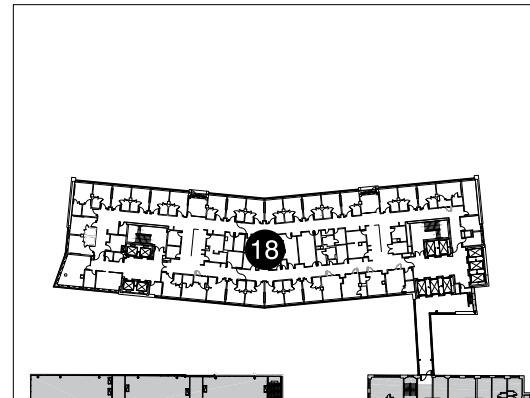
- 06 Recovery Room
- 07 Offices – Surgical Unit
- 08 Blood Services
- 09 Reception – Perioperative Services
- 10 Perioperative Services – Surgical Unit



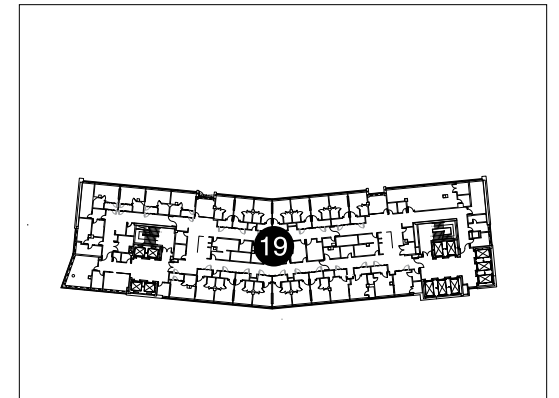
L2



L3



L6-9



L10

- 11 Respiratory Therapy
- 12 Medicine and Surgery Intensive Care Units
- 13 Coronary Intensive Care Unit
- 14 Integrated Cardiovascular Care Unit
- 15 Birthing Centre

- 16 Ante Partum Care Unit
- 17 Neonatal Intensive Care Unit
- 18 Care Unit
- 19 Isolated Care Unit

The tower

Composed of a layering of care units and equipped with ribbon windows. The rooms are bathed in light. In addition to maximizing natural illumination on all floors, the fenestration offers wide panoramic views of the City of Montreal and the Laurentians to the west.

The socle

With easy access from Légaré Street, the emergency department is the dynamic entry point of the Hospital.

The basilar

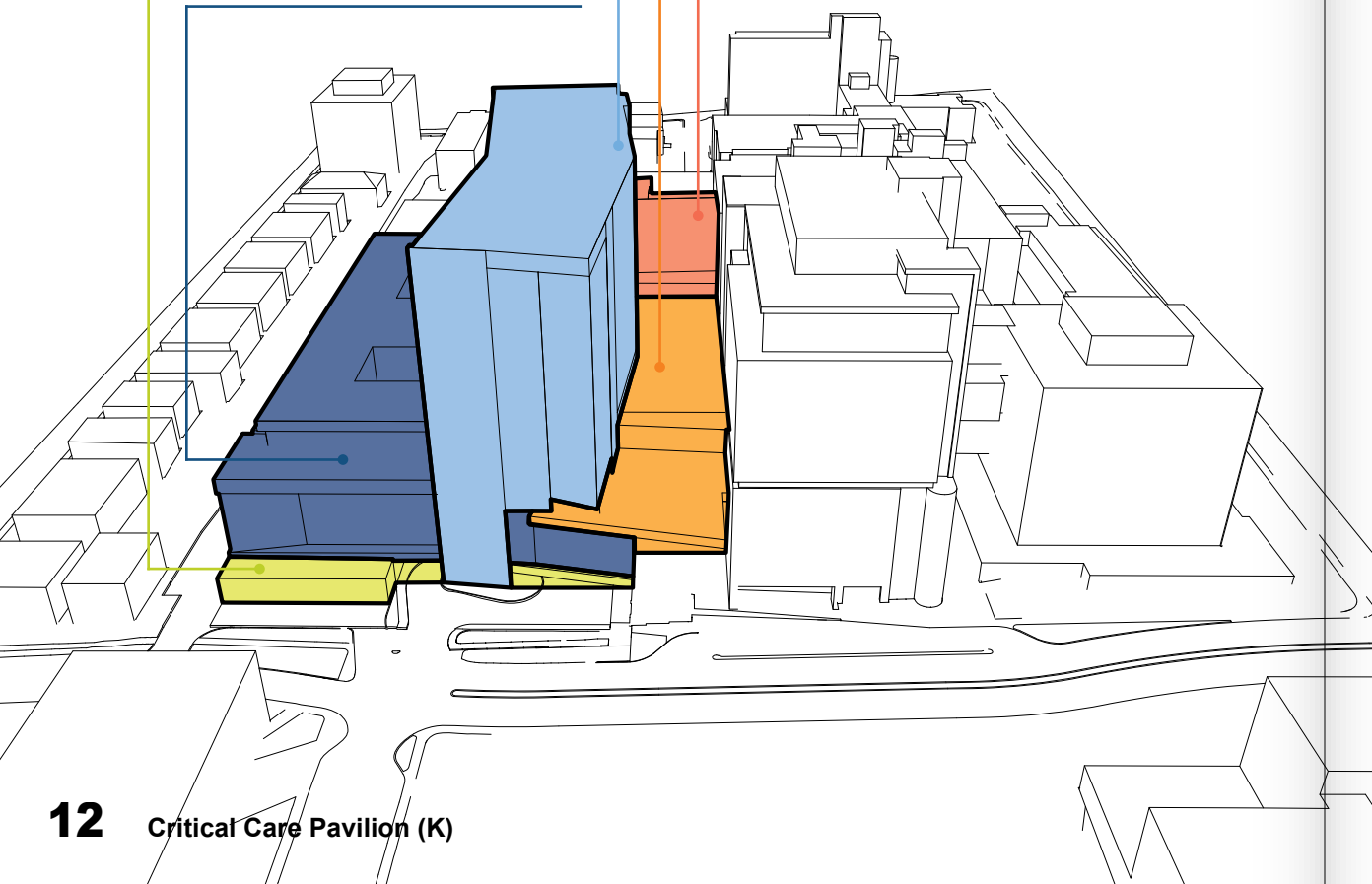
Includes the intensive care units, grouped in the periphery of the building and inner courtyards, so that each room has natural light.

The atrium: a hospital street

A space made up of a summer garden, outdoor courtyard adjacent to a café area fostering chance encounters and exchange near the entrance, a winter garden, and an outdoor patio open to the public.

The walkways

With unique vantage points throughout the hospital campus, these functional links provide places for meeting and exchange for staff.



Design Process

A simple volumetric concept meeting both urban and functional requirements was chosen and divided into five main and distinct components: the socle, the basilar, the tower, the atrium, and the walkways. The socle, the dynamic entry point of the Hospital, consists mainly of the Emergency Department. Rising from the ground, this technical platform supports the ICU of the basilar. The tower of care units, whose rectangular volume was folded to revitalize traditional orthogonal plans and diminish the effect of lengthy hospital corridors, is the distinctive element characterizing the new pavilion. The atrium and walkways complete the new construction, harmoniously and fluidly connecting it to the existing complex.

↓ View of the socle, basilar, tower, and atrium, Légaré Street



The strength of the project lies in the rigorous transition of the initial design concept into a completed structure. The project was developed and executed to the last detail by a dedicated team from beginning to end. Great importance was ascribed to existing assets and to building an ultra-modern institution designed for long-term growth within the community. The major concepts at the heart of the project stem from a series of simple objectives put forward by the director of the institution and enhanced by the design team. The guidelines set out had these goals in mind: to create human and functional environments addressing the requirements of medical staff and new healthcare technologies; to consolidate services and offer a unified reading of the entire hospital complex; and to clarify flow inside the building and reorganize outside access for both vehicles and pedestrians. With the help of clinical leaders and project managers, complementary objectives were put in place as follows: to maximize the amount of natural light and outdoor views from the treatment areas; to affirm the presence of the Hospital on an urban level while establishing a harmonious relationship with the neighbourhood; to promote natural orientation within the Hospital; and to incorporate sustainable building principles to the benefit of occupants.

The Agora, a concept that led to the design of a 3D sketch shown in comparison with the final construction, opposite →



“In general, Pavilion K is really peaceful, especially because it is very spacious. Patients report better sleep at night. What's even more wonderful is that since each patient has access to their own private bathroom, we found a significant improvement in their autonomy. This new independence has significantly decreased calls to orderlies, who are able to complete other daily tasks.”

— Justine De Monteiro, Head Nurse

View from patient room ↓





Public Spaces

The design of a reception area that is open, bright, and brings together the new construction and existing buildings represents a substantial contribution to the project. In addition to generating the creation of a new entrance to the Hospital—providing a clear, efficient circulation axis to the new pavilion and older buildings—the innovative concept of the Hospital Street, endorsed by institution officials, allowed for several new indoor public access points to the existing treatment areas of other pavilions.

- ← Agora – a hospital street linking Pavilion K to existing pavilions
- ↓ Main entrance, Légaré Street, and Agora



The central atrium, christened the Agora, was designed to promote exchange between staff and patients. This new internal street was thought out to improve the orientation and tracking of visitors and users, offering them a quick understanding of different circulation routes, and, consequently, of the institution's functions. It is lined with businesses and rest areas, including a café, two indoor patios, three food concessions, three businesses, a dining area, and an outdoor patio. In a dialogue with the existing structure, the Agora helps to highlight the heritage building of the former convent of the *Sœurs de Sainte-Croix*, acquired by the establishment in 2005 (see photo on page 15).

Agora →
Food court facing the exterior patio open to the public ↓





Critical Care

The project comprises the development of the largest emergency unit in Quebec, covering 6,600 m². The department offers double access (public/private) to each stretcher under observation as well as a Rapid Assessment Zone (RAZ)—a space with comfortable armchairs close to the treatment staff—two main elements that help to reduce wait times and bottlenecks. By separating patients from the moment they are admitted into two groups—inpatients unable to walk and outpatients who are treated in the Rapid Assessment Zone—the service aims to increase the flow of users by treating more patients in less time. Patients and medical staff have access to spaces dedicated to them, promoting greater staff efficiency and the improved well-being of the care recipients.

- ← RAZ – Rapid Assessment Zone
- ↓ Emergency Department Trauma Room





Work stations in the Emergency Department ↑
View of Emergency Department corridor →

Intensive care units include: medicine and surgery (36 beds); coronary care (18 beds); integrated cardiovascular care (36 beds); a neonatal intensive care unit with 40 cribs; a birthing centre with 15 rooms and 12 antepartum beds for high-risk pregnancies; four care units with 32 single beds in medicine and surgery; an isolation ward with 24 beds; a day hospital; a surgery unit with operating rooms; respiratory therapy care; a part of the medical imaging department; a hemodynamics suite; a blood bank; and procurement. The units are served by clusters of highly efficient elevators, one for patient transfers between the Emergency Department, operating rooms and intensive care units, and the other for routing sterilized items from the sterilisation room to the operating room.



“The abundance of natural light is one of the first things that patients and their families notice in the building. The size and configuration of rooms provide enough space for seriously ill patients, as well as the technology needed to treat them. It’s a pleasure to see the work of my team of nurses in a space where their professionalism and competence in intensive care come together in a spacious environment at the cutting edge of technology. We are all proud to be part of Pavilion K.”

— Jacki Raboy Thaw, Nurse Coordinator
Intensive Care Unit

Intensive Care Unit →
Entrance to the operating rooms in the Surgical Unit ↓



View of an operating room in the Surgical Unit ↓





↑ Medical reports room with view of the Laurentian landscape, nearby a nursing station

Natural Light

The abundance of natural light and exterior views are omnipresent in the building, both in the treatment areas and in spaces reserved for employees and the public.

The tower was extended to allow for the addition of open and transparent spaces aligned with the nursing stations, and to let natural light reach the heart of the building to benefit medical staff. Contact with the outdoors has been proven to help reduce stress and fatigue while promoting the wellness and improved retention of healthcare personnel.

↓ Nursing station, care unit floor



The project is primarily designed to ensure the well-being of patients and staff. The goal was to develop therapeutic, quiet environments that promote healing, and to design care units for the improved comfort and quality of life of patients and staff. It has been proven that the effects of natural light and views of nature have an important influence on a patient's treatment and recovery time.

Interior courtyards were built in the basilar to provide natural light in the heart of the structural volume on every intensive care unit floor. The work *Les Jardins* by artist Pierre Fournier is installed here. The provision of natural light is enhanced by the presence of works of art, which facilitate interior orientation by acting as points of reference.

Les Jardins, work by Pierre Fournier →
Neonatology floor, view of the interior courtyard ↓





“Building a new intensive care unit was a wonderful opportunity. The spaces dedicated to patients in the former intensive care unit were inadequate and suffered from noise pollution and a major lack of natural light. So we finally had the possibility of getting private rooms for all our patients. Our concerns were thus focused on our ability to carry out adequate monitoring, to recognize a change in patients’ conditions, and to respond promptly. The designers of the intensive care unit were able to consider all these issues. We regularly receive positive feedback from patients and their families about the amount of natural light, the quality of spaces, and the noise control. The healthcare team quickly adapted to the changes brought about by the implementation of the new design with private rooms. The pride that we have always had in our team is now doubled with the pride of working in such a beautiful, functional, and patient-centred environment.”

— Dr. Paul Warshawsky, Chief, Intensive Care Unit

← Relaxation room for employees and medical staff, care units



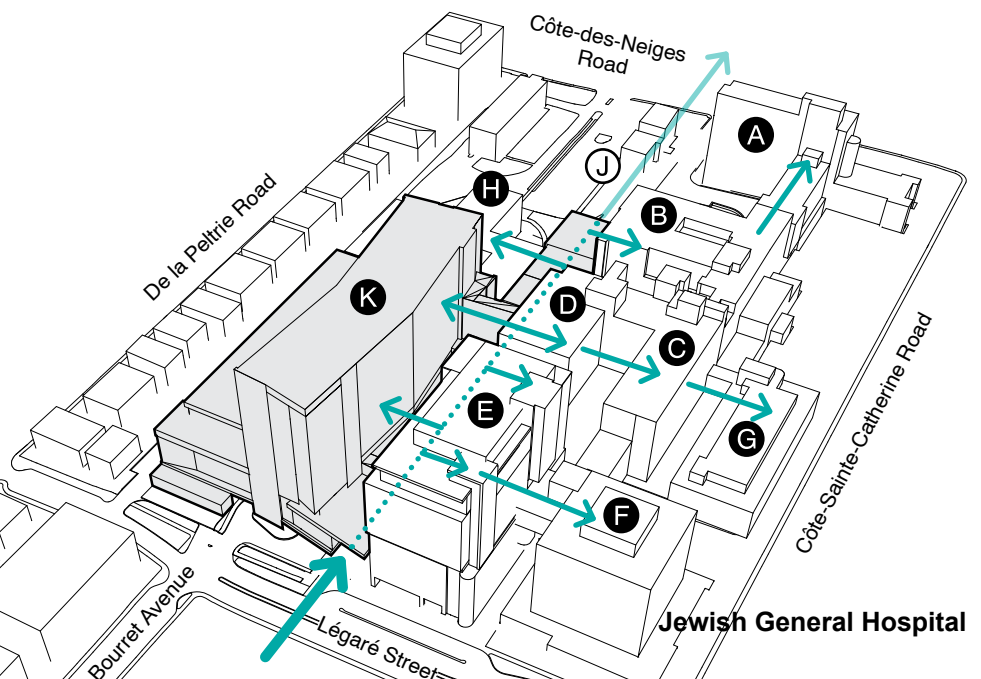
↑ Entry lobby and elevator access

- A Public Affairs and Communications, clinics, Human Resources, Foundation
- B Admission, Ultrasound, Psychiatry Unit, Palliative Care
- C Microbiology, Pharmacy, Post-partum Unit, care units
- D Endocrinology, Hematology, Radiology, Physiotherapy, care units
- E Cardiology, Segal Cancer Centre, Dermatologic Oncology, Gastroenterology
- F Lady Davis Institute
- G Dermatology, Radiation Oncology, Pathology
- H Cardiovascular Prevention, Family Medicine, Women's Care Centre, Epidemiology
- K **Critical Care**

Orientation and Signage

The first contact with a hospital as a patient or visitor is often a source of confusion and stress, due in part to the inherent intricacies of large hospital complexes. Often built during successive periods, the various pavilions of a hospital campus have characteristics of their own, dictated by the need for easy road access, technical function, and specialized equipment. To remedy this problematic perception, it was important to allow visitors to have a clear understanding of the organization of the new and existing pavilions.

The atrium, which is three storeys high and whose abundance of natural light comes from the skylight spanning over 150 metres, creates a new point of entry to the hospital and embraces much of the entire campus. To provide simple and instinctive orientation, public elevators are visible upon entry to the building, thereby minimizing the efforts of staff and volunteers to guide newcomers.

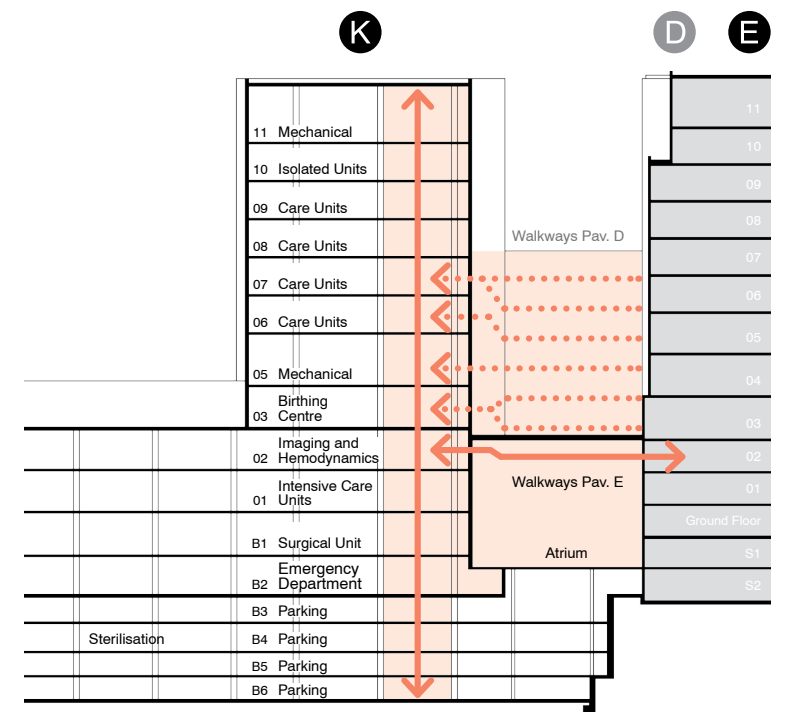




↑ Elevator lobby, care unit floor

A common thread was integrated into the project in the form of wooden wall paneling to create a continuous and friendly link among the various public spaces of the project. This noble and natural material brings a comforting presence, adding to the soothing ambience of the environment.

Several other elements promoting effective tracking and guidance for patients, visitors and medical staff were integrated into the conceptual development of the project, including: efficiency; the segregation and hierarchisation of areas and circulation networks for the public, patients, medical staff and equipment; the creation of separate zones for different activities relating to reception, waiting, preparation, response, and recovery to facilitate the treatment process; enhancement of patient reception at the entrance of each service by clear access signage in a quiet, safe and serene therapeutic environment; plenty of outside views allowing for greater ease of orientation for users and well-being of medical and non-medical staff; and the use of colour to differentiate floors and departments.



All these elements, however, could not replace the need for information signage. Located strategically in collaboration with clinical staff, signage was the subject of special attention, mainly in its seamless integration to the interior design in all departments of the project.

View of one of the corridors in the emergency →
Department Nursing station, care unit floor ↓





Logistics

The expansion constitutes an addition of 40% to the existing area of the hospital, which grew from 150,000 m² to 235,000 m². Consequently, a complete review of logistics systems was necessary to reflect circulation flows between the new and the old areas for staff, stretcher patients, medical supplies, pharmacy and food trolleys, and common and biomedical waste. The grouping of activities was carried out following the testing of numerous configurations depending on their functional affinities and by optimizing the links of proximity and fluidity among certain functions, treatment posts, and areas of recovery.

- ← Sterilisation apparatus for medical instruments, view from sterilized zone
- ↓ Sterilisation room and equipment





↑ Sterilisation room and equipment, view from unsterilized zone

↖ Ambulance entrance to Emergency Department, Surgical Unit, and Intensive Care Unit

The fluidity of vertical circulation is a key element of the functional concept. Four elevator hubs were established: for the public; for logistics and movement of patients; for patient transfers between the emergency department, operating rooms and intensive care units; and for the routing of sterilized equipment in the surgical unit. These were strategically positioned to allow isolation of uses, ease of access, and rapid movement between floors.

The building presents significantly higher floors than those of existing pavilions to enable the installation of electromechanical distribution that meets current standards, is adaptable to long-term usage, and is optimally integrated into existing floors for obvious reasons of fluidity of personnel and the transfer of patients. Seven levels of walkways with the existing building have been incorporated into the architectural design, offering functional links, not to mention stunning views of the entire hospital complex.

Sterilisation

A new Sterilization Department was designed to meet all the needs of the Hospital as formulated by those in charge of this key department and according to the latest standards. A simple layout was developed to achieve a linear and controlled process. The interior finishes were the subject of particular attention to meet the required aseptic levels and to provide a safe and pleasant working environment.

Large-volume pneumatic chute system

The project includes the integration of the first automated system for collecting waste and soiled linens inside a hospital building in Canada. By replacing the traditional chute process that generated significant movement of contaminated materials throughout the interior of a hospital, this automated system diverts contaminated elements of each floor directly to the laundry and garbage containers, localized outside the building. This system provides the dual benefit of reducing nosocomial infections and of economizing on maintenance staff.



Site, April 2012 ↗
 Construction of the basilar and the tower, November 2012 ↓



46 Critical Care Pavilion (K)

The construction of this large-scale project was managed in two phases comprising 53 lots and based on a fast track regime on a dense urban site with limited space for construction facilities.

In addition to the construction complexity of this type of project were the major constraint of maintaining complete operations of the existing hospital visited daily by thousands of people, and the conservation of the heritage characteristics of the *Sœurs de Sainte-Croix* building, which quietly fits into the entire new hospital complex.



Michel Broz
Architect – Project Manager



Nicolas Ranger
Architect – Design Lead



Sylvain Morrier
Architect – Site Supervisor

Team

To achieve this major expansion at the Jewish General Hospital, a project office was established at the onset of the preparation of preliminary plans with all stakeholders, i.e., more than 120 people (professionals, client, construction manager, users). Thanks to the collaborative work of an experienced team, we were able to achieve the goal of producing the plans and specifications within a short timeframe despite a complex context, all the while ensuring an exceptional quality of design.



Jodoin Lamarre Pratte architectes

Project Manager:
Michel Broz, Architect, Senior Partner

Principal Designers:
Éric Marosi (Marosi Troy) and Nicolas Ranger,
Architects, Senior Partners

Cost Estimator, Specifications:
Réal Leblanc, Architect, Partner

Site Supervisor:
Sylvain Morrier, Architect, Senior Partner

Programming Manager — Surgical Unit and
Intensive Care:
Martine Gévry, Associate Architect

Neonatology Designer:
Julie Boucher, Architect

Technical Manager, building envelope:
Alain Rolland, Architectural Technician

Design, Execution, and Site Supervision Team:
Lucie Bégin, Architect
Dominique Benoît, Architectural Technician
Karima Chami, M. Arch.
Nicholas Chan, Architect
Paul Collin, Architectural Technician
Tanya De Bellefeuille, Architect
Sergio de la Cuadra, M. Arch.
Benoît Doyon, Architectural Technician
Marie-Josée Dupont, Architect
Catherine Fortin, Interior Designer
Carolyne Fournier, Architectural Technician
Denis Gaudreault, Architect
Catherine Gauthier, Architect
Rita Ghoche, Architect
Stéphanie Girardeau, Architect
Ken Hampson, Architect
Jordi Jordana, Architect
Katia Lamalle, B. Sc. Arch.
Marie-Michèle Larocque, Architect
Emmanuelle Leclerc, Architect
Eric Massé, Architect
Olivier Millien, Architectural Technician
Nicole Pelletier, Associate Architect
Joanie Quirion, M. Arch.
Marilou Simard, Site Administrative Assistant
Stéphane Tremblay, Architectural Technician
Christine Trudeau, Architect
Stéphanie Vallières, Architect
Emily Whitcher, M. Arch.

Gross Kaplin Coviensky / Marosi Troy Teams

Jewish General Hospital

Project Director:
Georges Bendaïd, Director, Technical Services

Planning Team:
Fanny Obadia, Yaël Harroche, Émilie Boileau,
Jacqueline Lorange, Architects
Pascal Dayan, Engineer
Judith Suissa, Finances
Olga Lecousy & Galina Petrova, Administration

Planning/Transition Team:
Joanne Côté, Director of the Transition Office
Annie Thinel, Inf., Clinical Coordinator
Marjan Yazdanpanah, Ing., Logistical Project Coord.
Michèle Lefort, Administrative Assistant
Stephanie Malley, Chelsea Pandelis, Communications

Teams - Clinics:
We thank the nursing/physician partnership of
each care unit.
Johanne Boileau, Director of Nursing
Pearl Orenstein, Inf. PCI
Dr. Lawrence Rosenberg, PDG CIUSSS-COM

Teams - Support:
Dan Gabay, Director of Multidisciplinary Services
Virgine Tourte, Director, Logistics
Audrey Bennarosh, Chief, Sterilization
Eva Cohen, Chief Pharmacy
Tony Nappi, Virginia Fernandes, Chiefs,
Environmental Services
Robert Apardian, Chief, Biomedical engineering
Bob Lapointe, Director, IT
Thomas Prokos, Chief, Security

Consultants

Electromechanical: Bouthillette Parizeau inc.
Structural and Civil: Groupe S.M. International inc.
Landscape: Daniel Arbour et Associés
Vertical Transport: Jean-Marc Caron et Ass. inc.
Code and Standards Consultation: Technorm inc.
Hardware: Alain Lemieux et Ass. Consultants inc.
Acoustic: Davidson et Associés inc.
Structural Glass: SDK et Associés inc.
Circulation Management: CIMA+
Food Services: Bernard et Associés
Signage: Arium Design inc.
Wind and Snow Study: Rowan Williams Davies
and Irwin Inc. (RWDI) et Lasalle | NHC
Asbestos and decontamination: Contex
environnement inc.
Construction Management: Magil Construction Corp.



Programming: Jodoin Lamarre Pratte architectes
Architecture: Jodoin Lamarre Pratte architectes /
 Gross Kaplin Coviensky / Marosi Troy
Date of execution: April 2009 — July 2015
Total area: 85,000 m²
Construction cost: \$264.5 M

**Writing and
 production:** Marie-France M. Messier
Graphic design: Marie-Josée Dupont
 Marie-France M. Messier
Photo credits: Stéphane Groleau

← Connection between Pavilion K and existing Pavilion H
 ↓ Food court patio and connection with existing building



Major Healthcare Projects

The healthcare field is one of the most recognized areas of expertise for Jodoin Lamarre Pratte architectes, actively working for over 30 years in the development of hospital projects (which at the time of publication represents 65% of the volume of the firm's activity), both for short and long-term patient care. The following projects built or under construction, represent the most important achievements of the firm in this field since 2004.

Integrated Regional Cancer Centre (CRIC), new construction on the site of the Hotel-Dieu de Lévis	\$75 M	2018
Dialysis Centre at Hôpital Maisonneuve-Rosemont, Montreal	\$37 M	2018
Retirement home, Saint-Jérôme	\$27 M	2018
Emergency Depart Expansion, Hôpital Charles-Lemoyne, Longueuil	\$27 M	2017
Expansion of the rehabilitation centre La Maison, Rouyn-Noranda	\$7 M	2016
Expansion and Modernization, Centre hospitalier universitaire Sainte-Justine, Montreal	\$450 M	2016
Master Plan and Mountain Site, McGill University Health Centre (MUHC), Montreal	\$1,58 G	2016
New Critical Care Pavilion (K) at the Jewish General Hospital, Montreal	\$265 M	2015
CPMP for the transformation of the Hôpital Notre-Dame and an FTP for the Emergency Department of the CSSS Jeanne-Mance, Montreal	\$100 M	2014
Housing for the Grey Nuns of Montreal	\$17 M	2013
Integrated Cancer Centre, Cité-de-la-Santé, Laval	\$28 M	2011
Centre for Child Development, Jewish General Hospital, Montreal	\$9 M	2010
Integrated Cancer Centre, Hôpital Charles- Lemoyne, Longueuil	\$46 M	2010
Major expansion, Hôpital de Saint- Eustache	\$25 M	2010
New Entrance of the Radio-Oncology Department at the Jewish General Hospital, Montreal	\$22 M	2008
Major expansion of Hôpital Honoré-Mercier, Saint-Hyacinthe	\$60 M	2008
Institute for Integrated Medical Sciences and Holistic Therapies, New Delhi	\$250 M	2007
Radio-Oncology Department expansion at Hôpital Maisonneuve-Rosemont, Montreal	\$15 M	2006
Hôpital Pierre-Le Gardeur, Terrebonne	\$120 M	2004





