



PSPC

New Montreal Judicial Complex

Excerpts of the Technical Program

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INTRODUCTION – BACKGROUND

This document provides excerpts of what will be set forth in the Technical Program (TP). Its purpose is to highlight the specific issues that the designers will need to address, and it refers only to those items that, as part of their mandate, will require their specific attention as well as exceptional design consideration.

The design of all items not mentioned herein shall be carried out either: (1) in accordance with good professional practice and all the applicable codes and regulations, as well as PWGSC (PSPC) instructions, or (2) in accordance with the specific requirements set out in the FTP, but not involving any issues representing exceptions to the scope of the mandate.

Please note that the full and final FTP will be issued at a later date. The information that is currently available on the project's content, scope and key issues is as follows:

- Functional Program – Volume 1 – Fourth Version, issued for tender on 2020-09-03
- Unit worksheets in Excel spreadsheet format, issued on 2020-10-02
- Excerpts of the Technical Program, issued on 2020-10-02

Another important consideration is that the NMJC site, building and facilities will be classified Level One – High Security Posture (see the Base Building Security Standard in the FP (Volume 3). This implies that there are security considerations that will require special equipment and interventions, and these will need to be taken into account at the design stage by all the disciplines.

The integrated design process (IDP) credit is being targeted as part of the feasibility study for LEED Platinum certification. In order for the project to receive this credit, provide the required pre-design analysis and modeling.

Take into consideration the fact that the concepts and finishes for the spaces will need to be presented to and approved by members of the judiciary (through PSPC).

Note that parts owned in common with neighbours could involve additional work and separate estimates for the common wall portions. In such a case, common ownership would need to be acquired. An indemnity, calculated on the basis of the value of the wall and including experts' fees, is payable prior to the acquisition. These costs and fees are to be included in the construction budget. The easement (without a site) on Notre-Dame Street provides that this servitude can be integrated into the building. So passage is required, but its location can be decided by the owner (Her Majesty), such that the passage could be to Saint-Jacques Street. The designers will need to present this servitude clearly in their design, and it will need to be integrated into the drawings and specifications. A presentation will need to be developed so that PSPC can present it to whoever needs to see it, and have this servitude notarized. The glass door on the side of the building (near Notre-Dame Street) must also be brought into compliance with codes (existing use to be verified by the designers).

A10 FOUNDATIONS

A1010 – Standard foundations

The technical program will not recommend the construction of conventional foundations due to the low bearing capacity of the soil and the risk of differential settlement.

A1020 – Special foundations

The planned building foundations must be on piles and/or caissons in order to be fully supported by the subsoil and take the imposed loads. Several strategies can be considered in the design stage, including:

- Piles (steel tube) driven down to bedrock and filled with concrete;
- Piles (with steel sheathing) bored down to bedrock and filled with concrete;
- Caissons down to bedrock and filled with concrete;
- Passive rock anchors with double corrosion protection;
- Pile caps, rafts and tie beams;
- Perimeter wall beams.

Other types of foundations may be considered for work erected close to neighbouring buildings, including:

- Underpinning the foundations of neighboring buildings;
- Soil retention measures employed during the excavations, such as Berliner walls, diaphragm walls and sheet piles.

A1030 – Bottom slab

The report from the geotechnical study recommends that the bottom slab in the basement be structural in order to avoid any significant differential settlement that could occur due to the poor quality of the existing soil.

Embodied carbon emissions (i.e. the emissions resulting from the life cycle of the materials used in the project) can exceed a building's operational carbon emissions. It is therefore important to take this information into consideration when selecting materials.

There are several potential strategies for reducing the environmental impacts of using concrete and steel, and they can be validated during the life cycle analysis. Some examples include: recycled steel, cement-free concrete (such as the Montreal-based Carbiocrete technology), ternary cement (made by adding fly ash and silica fume), and CO₂ injection to sequester carbon. These strategies can be applied wherever concrete and steel are used.

A20 BASEMENT CONSTRUCTION

A2010 – Excavation of the basement

The design of the construction project must take into account the backfilling of contaminated soils, which are present on the site up to a depth of 4 metres (in some locations, potentially up to 5 metres). These soils will need to be managed at disposal sites authorized by the *Ministère de l'Environnement et de la Lutte contre les Changements climatiques* (MELCC). In addition, the design must take into account the environmental remediation of a petroleum hydrocarbon plume. Preliminary information on this plume shows that it covers an area of approximately 800 square metres, extends from the northwest corner of the property, and is between 6 and 13 metres deep. Further information on the petroleum hydrocarbon plume will be presented in the complementary environmental characterization report, to be released between now and November 2020. The fact that the petroleum hydrocarbon plume extends beyond the property's current boundaries also needs to be taken into account.

B10 SUPERSTRUCTURE

The proposed building can be erected using any of the following structures, alone or in combination: reinforced concrete, structural steel and glulam. The regulatory framework requires a structure built of non-combustible materials, hence the need to apply for an alternative measure if wood is to be used.

B1010 – Floor construction

Provide for the design of multiple-level floors to accommodate raised service floors, raised podiums and ramps while meeting universal accessibility requirements. The structural systems will need to provide sufficient flexibility to accommodate future transformations as needs change. Load-bearing partitions may be required where there are floor discontinuities.

This premise will need to be taken into account when selecting a structural system and its constituent materials.

B1020 – Roof construction

Coordinate the framing of the roof with the specific needs mentioned in B3010 Roofing.

Green roofs may be considered to obtain the LEED credits required for Platinum certification. In this case, design the roof structure to support the additional loads required by the green roof as well as water retention on the roof. Multiple levels may be required to accommodate these systems.

Design the structure of the roofs to support the loads of window washing equipment.

B20 EXTERIOR ENVELOPE

B2010 – Exterior walls

Under the municipality's by-laws, only noble materials can be used for the exterior cladding of the building. In addition, the architectural language used will need to integrate well into the urban environment and the heritage context of Old Montréal. Plan for presentations and an approval process as required with the competent authority.

B2020 – Exterior windows

Provide windows with ballistic protection for the courtrooms, hearing rooms and judges' offices. All windows and window frames located along judges' circulation paths will require ballistic protection UL752 Level 3 glass. Provide protection to prevent views through windows into courtrooms, hearing rooms and judge's offices.

B2030 – Exterior doors

Provide ballistic protection UL752 Level 3 glass on glazed doors.
Avoid corners that create blind spots, in coordination with security issues and needs.

B30 ROOF

B3010 – Roofing

Roof terraces and occupant access to roofs are prohibited.

Roofing should be considered an important component toward obtaining LEED Platinum certification, so consideration must be given to using green (or white) roofs with water retention basins.

An anchoring system must be provided to allow for the maintenance of the roofs and equipment located on the roofs.

The roofing components must allow for roof access with small equipment without risk of damage to the roofing. Means of access must be provided to any planted areas on roofs so that they can be maintained.

C10 INTERIOR CONSTRUCTION

C1010 – Partitions

Where required, ensure that the material assemblies provide the necessary ballistic protection.

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

All partitions with acoustical and privacy requirements will need to be designed in collaboration with an acoustician.

C1020 – Interior doors

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

All interior doors with acoustical and privacy requirements will need to be designed in collaboration with an acoustician.

C30 INTERIOR FINISHES

C3010 – Wall finishes

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

C3020 – Floor finishes

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

Provide raised technical floors in courtrooms and hearing rooms, as well as raised podiums for the judges, with ramps. Ensures smooth management of traffic flow by taking into account multiple levels and considerations of universal accessibility as well as flexibility for future transformations. Allow for a harmonious and flexible integration of technological systems (IT and audiovisual).

C3030 – Ceiling finishes

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

D10 MEANS OF TRANSPORTATION

D1010 – Passenger and service elevators

Elevator systems must include a sophisticated, secure and programmable access control system that enables daily management of access by security personnel, judicial personnel and the public. The system requires that each elevator be equipped with destination management that can be modified on a daily basis.

D20 PLUMBING

D2010 – Plumbing fixtures

Provide for the potential use of greywater in the building's toilets if this credit is to be used for LEED certification.

D30 HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

D3010 – Energy source

The use of hydrocarbons as a source of energy is prohibited.

D3020 – Heat production system

Provide for an innovative systems design, promoting an approach aligned with sustainable development objectives.

D3030 – Cold production system

Provide for an innovative systems design, promoting an approach aligned with sustainable development objectives.

Water towers with open basins are prohibited, in accordance with government guidelines for Legionella management, the management of chemical products and sustainable water development. Instead, dry heat rejection equipment is recommended.

D3040 – HVAC distribution

When designing HVAC systems, consider that lower noise criteria (NC) levels may be required in certain spaces, such as courtrooms, hearing rooms and judges' offices.

D50 ELECTRICITY

D5010 – Electrical services and distribution

Provide an arc flash study and identify all electrical equipment in accordance with the latest edition of the standard CSA-Z462-18, and label the equipment appropriately to ensure safety in maintenance work.

Provide a short-circuit study and a protection and coordination study of the entire distribution system.

D5020 – Lighting and secondary distribution

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system. The lighting design should be based on this premise, adopting a strategic approach and developed in close collaboration with the work on architectural design.

Provide for the testing of lighting levels before and after the equipment is installed.

All luminaires shall have a life expectancy of over 50,000 hours.

Provide a network of conduits in the slab or below raised floors to meet the needs as required by hearing room and courtroom configurations.

Provide general lighting around the building to furnish a safe level of illumination. Special attention must be paid to areas between buildings used by pedestrians. Perimeter lighting must be adjusted to optimize views through the video surveillance system and must adjust to the variations in outdoor lighting throughout the day.

Coordinate the selection of outdoor luminaires with the competent authority so that they harmonize with the urban environment.

D5030 – Communications and security

The NMJC will be a Level One – High Security Posture building (RCMP rating), implying special requirements for design and for IT equipment. A summary table of these criteria is presented and must be taken into consideration. Coordinate the design efforts with the individuals responsible for PSPC's IT services, as well as with the representatives of Shared Services Canada assigned to the project.

Design a Security Operations Centre (SOC) that is operational 24/7/365. The SOC will require UL 752 / Level III ballistic protection.

The following pages present a table illustrating the responsibilities of the parties involved in the project as well as the scope of each of their mandates.

TABLEAU TI R9			
R.090448 - Projet de relogement SATJ et SCData / CAS and ATSSC Relocation Project			
Volet TI : Rôles et responsabilités des intervenants / IT component : Roles and responsibilities		Services Partagé Canada (SPC) / Shared Services Canada (SSC)	Concepteur TI / Designer IT
SERVICES / SERVICES			Gérance de cons- truction / Construction ma- nagement
1	Salles des fournisseurs de services DEMARK / Service Provider Rooms DEMARK (services filaires, sans fils et cellulaire / Wireline, wireless and cellular services)		
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●
	Conception / Design		●
	Plans & Devis / Drawings and specifications		●
	Achats d'équipements / Equipment purchases		●
	Installation d'équipement / Equipment installation		●
2	Salles Télécom principales & secondaires (incluant COS et salles techniques AV) / Main and Se- condary Telecom Rooms (including COS and AV Technical Rooms) (Pour TI, sécurité, salle d'audience et clients / For IT, security, courtroom and clients)		
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●
	Conception / Design	●	●
	Plans & Devis / Drawings and specifications		●
	Achats d'équipements / Equipment purchases		●
	Installation d'équipement / Equipment installation		●
3	WAN (Téléphonie, données, sécurité et multimédia) / WAN (Telephony, data, security and multime- dia)		
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●
	Conception / Design	●	●
	Plans & Devis / Drawings and specifications		●
	Achats d'équipements / Equipment purchases	●	●
	Installation d'équipement / Equipment installation	●	●
4	LAN (Téléphonie, données, sécurité et multimédia) / LAN (Telephony, data, security and multimedia)		
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●
	Conception / Design	●	●
	Plans & Devis / Drawings and specifications		●
	Achats d'équipements / Equipment purchases	●	●
	Installation d'équipement / Equipment installation	●	●

Volet TI : Rôles et responsabilités des intervenants (suite)/ IT component : Roles and responsibilities (followed)		Services Partagé Canada (SPC) / Shared Services Canada (SSC)	Concepteur TI / Designer IT	Gérance de cons- truction / Construction ma- nagement
SERVICES / SERVICES				
5	Câblage structuré (Téléphonie, données, multimédia et système d'immeuble (ascenseur, incendie, CVAC, sécurité)) / Structured cabling (Telephony, data, multimedia and building systems (elevator, fire, HVAC, security))			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design	●	●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases	●		●
	Installation d'équipement / Equipment installation	●		●
6	WIFI / WIFI			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design	●	●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases	●		●
	Installation d'équipement / Equipment installation	●		●
7	Téléphonie (Communications analogiques, numériques, VoIP, 1-800, couverture cellulaire et autres) / Telephony (Analog and digital communications, VoIP, 1-800, cellular coverage and other)			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design	●	●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases	●		●
	Installation d'équipement / Equipment installation	●		●
8	Système vidéo-conférence (pour salle de conférence, réunion, formation, etc) / Video conference system (for conference rooms, meetings, training, etc.)			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design	●	●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases	●		●
	Installation d'équipement / Equipment installation	●		●

Volet TI : Rôles et responsabilités des intervenants (suite)/ IT component : Roles and responsibilities (followed)		Services Partagé Canada (SPC) / Shared Services Canada (SSC)	Concepteur TI / Designer IT	Gérance de cons- truction / Construction ma- nagement
SERVICES / SERVICES				
9	Systèmes spécialisés : Enregistrement et de diffusion voix et/ou image (pour salle d'audience) - E-COURT et babillard à messages à diffusion interne et général / Specialized systems: Voice and/or image recording and broadcasting (for courtroom) - E-COURT and message boards for internal and general broadcasting			
	Vérification et validation des exigences du projet / Verification and validation of project requirements		●	
	Conception / Design		●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases			●
	Installation d'équipement / Equipment installation			●
10	Systèmes de sécurité : Surveillance, contrôle d'accès et détection / Security systems: Monitoring, access control and detection			
	Vérification et validation des exigences du projet / Verification and validation of project requirements		●	
	Conception / Design		●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases			●
	Installation d'équipement / Equipment installation			●
11	Alimentation sans coupure / Uninterruptible Power Supply (UPS)			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design	●	●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases	●		●
	Installation d'équipement / Equipment installation	●		●
12	Génératrice (Pour TI, Multimédia, Salle d'audience et Sécurité) / Generator (For IT, Multimedia, Audience rooms and Security)			
	Vérification et validation des exigences du projet / Verification and validation of project requirements	●	●	
	Conception / Design		●	
	Plans & Devis / Drawings and specifications		●	
	Achats d'équipements / Equipment purchases			●
	Installation d'équipement / Equipment installation			●

E10 EQUIPMENT

E1040 – Security check equipment

Each reception guard station (at the public entrances and the delivery dock) will be equipped with metal detection equipment and an X-ray machine for controlling visitors' personal belongings. Design the delivery dock guard station with all the equipment required for it to operate as a reception guard station. The equipment must be capable of detecting any potential hazard, including detection of metal, chemicals and explosives.

E20 FURNISHINGS AND DECORATION

E2010 – Fixed furnishings and decoration

Judges' and clerks' podiums must be equipped with UL 752 / Level III ballistic protection to ensure adequate protection in the event of a crisis.

The NMJC must project the institutional image of the judicial system, its decorum and the importance of justice, and it must command respect. This means that for all the paths taken by citizens receiving services from the justice system, from the building entrance to the courtrooms and hearing rooms and in the spaces allocated to the judiciary, the NMJC must feature design and materials of high quality in line with the institutional image of the justice system.

G10 SITE PREPARATION

G1020 – Site preparation/demolition

In the context of a LEED Platinum certification project, and considering the complexity and the small size of the site, the designers will need to analyze the site more specifically in terms of its development and the prevention of pollution during the construction period. They will also need to coordinate with the City of Montréal on various issues related to the occupation of the site and city streets required to carry out the work.

G1040 – Site decontamination

The design of the construction project must take into account the backfilling of contaminated soils, which are present on the site up to a depth of 4 metres (in some locations, potentially up to 5 metres). These soils will need to be managed at disposal sites authorized by the *Ministère de l'Environnement et de la Lutte contre les Changements climatiques* (MELCC). In addition, the design must take into account the environmental remediation of a petroleum hydrocarbon plume. Preliminary information on this plume shows that it covers an area of approximately 800 square metres, extends from the northwest corner of the property, and is between 6 and 13 metres deep. Further information on the petroleum hydrocarbon plume will be presented in the complementary environmental characterization report, to be released between now and November 2020. The fact that the petroleum hydrocarbon plume extends beyond the property's current boundaries also needs to be taken into account.

G2040 – Site development

When designing and laying out the building, take into consideration the requirements for integrating heritage and archeological resources as identified in the Functional Program (FP).

Take into consideration the constraints posed by the site and its specific nature as identified in the Certificate of Location appended to the FP and in the opinion report on easements, encroachments, views and party walls (joint use along property lines).

Security issues will need to be considered when planning the site development, and they will need to be coordinated with the security specialist and representatives of NMJC occupants.

