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Architectural & Engineering Services

TOR Appendix 1 - Project Brief

CSC SMI Administration Building Renovation

For:

Correctional Service Canada
Stony Mountain Institution
Stony Mountain, Manitoba

PWGSC WBS#: R.069417.001

September, 2015

Table of Contents:

1 BACKGROUND - PREDESIGN

1.1 OVERVIEW

1.1.1 BUILDING DEVELOPMENT PLAN (BDP)

.1 As a Front-End Planning exercise, Public Works and Government Services Canada (PWGSC) prepared the a BDP document in collaboration with Correctional Services Canada (CSC) for the redevelopment of the Administration Building at Stony Mountain Institution (SMI), Stony Mountain Manitoba.

.2 The BDP is a record of the options analysis, with recommendations and building demonstration plans, predicated on client input documented during the front-end planning process. Out of this study, CSC's preferred option for further development was a hybrid between the BDP's scenarios 2 and 3.

.3 The Project Brief serves to advance an efficient and effective design process by way of communicating preliminary pre-design/design information and explorations.

1.2 FUNCTIONAL PROGRAMMING

1.2.1 INFORMATION GATHERING PROCESS

.1 Involving all stakeholders, functional programming was used as a research and decision making process to identify the potential scope of work that may apply in various scenario studies.

.2 The intent of functional programming in this project was to resolve the existing compromised intra- and inter-departmental spatial relationships caused by occupants "making do" with the existing and mostly partitioned building conditions and develop a more open, interactive and engaging work environment without compromising program delivery and security requirements.

.3 Needs assessment interviews/meetings with those in specific positions and/or program delivery functions were facilitated by PWGSC in the presence of a Functional Unit leader.

.4 Given that the BDP is outdated, CSC has explored the spatial and functional requirements further and has provided a revised facility program and recommended development approach. This information is provided in Appendix 2 and must be used in conjunction with the CSC Accommodation Guidelines and Technical Criteria.

.5 Using the new program information as a base, the Consultant Team will be responsible to provide a revised Functional Program which incorporates current requirements by amendments to the previous Functional Program.

2 PROJECT INTRODUCTION

2.1 BACKGROUND

2.1.1 CORRECTIONAL SERVICES CANADA, SMI PERSPECTIVE

.1 General

.1 The nature of correctional work is undergoing change. Changing policies and new technologies impact the physical work environment design and its use by the occupants.

.2 Work environments that improve and inspire how the work is done, adds value to CSC and attracts and retains staff.

.3 A wider range of accessible and flexible work settings are required to meet an increasing range of responsibilities and activities.

.4 Strategic building planning is required to capitalize on the existing space resources and develop optimum work settings for the near term and evolving requirements.

.2 Project Mission Statement:

.1 Optimize building use through:

.1 Conformance to CSC Accommodation Guidelines, Technical Criteria Document and universal accessibility CSA Standards B-651-04.

.2 More effective use and configuration of shared common spaces

.1 Meeting and interview rooms/collaborative work areas,

.2 File area(s).

.3 Common size open workstations.

.2 Develop strategically zoned secure and free circulation.

.3 Plan for the relocation of permanently-occupied, basement positions/functions to more appropriate space for the near and mid-term.

.4 Improved air quality and comfort level with attention to:

.1 Humidification,

.2 Heating

.3 Ventilation and

.4 Air conditioning.

.5 Improve life safety systems to current Code levels.

.6 Improve security, operations, layout and circulation of principal entrance to reduce introduction of contrabands and optimise flow.

.3 Project Vision Statement:

.1 Provide an engaging work environment for productivity and staff retention through:
.1 Contemporary work environments and
.2 Functional collocation of workstations and departments.

.2 Various Functional Program space fit-ups have different secure work environment.

.4 Key Existing Issues Driving Redevelopment

.1 Inadequacy of the heating, cooling, air movement system results in the institution being unable to provide a healthy and comfortable work environment.

.2 Lack of a fire suppression system, particularly in areas where inmate files are held results in a significant risk associated with the lack of fire protection for these documents.

.3 Failure to satisfy several government initiatives, such as barrier-free access.

.4 Poor spatial relationships between departments that should interact freely.

.5 Failure to comply with government environmental initiatives such as reduction in energy use, the Sustainable Development Strategy

2.1.2 EXISTING BUILDING CONDITIONS

.1 History

.1 The Administration Building, constructed between 1931 and 1947, is a Recognized FHBRO building.

.2 The building shell was completed by the end of the 30's and included a basement, three floors and a partial fourth floor (south wing and centre section). (The north section is an attic made up of deep trusses clear spanning the third floor.)

.3 Original building design was in three sections north wing, south wing and a centre section. The centre section was originally at a lower elevation to provide a main gate – vehicle and pedestrian passage through the building, complete with sidewalks and depressed vehicle roadway.

.4 The building shell was completed by the end of the 1930's. North half was occupied in 1946-47 with interior work continuing into 1954 for the remainder of the building.

.5 Between 1969 and 1979 various substantial interior alterations were carried out including the addition of exit stairs at each end of the Building.

.2 Current Functions

.1 Stony Mountain Institution is classified as a Minimum, Medium and Maximum security level with a Rated Inmate Capacity of 546.

.2 Over the past 50 years there has been a growing need for a building redevelopment due to program and operational changes, improvised workplace spaces and changing building and environmental code and standard requirements.

.3 Currently the Administration functions utilize 3 full floors, basement and fourth floor Fourth floor level consists of the centre and south sections of the building while north section is an attic made up of deep trusses clear spanning the third floor. Currently accommodated functions (and associated acronyms used throughout this document):

.1 Main Floor - Public Entrance/Security Reception, Central Control Post (CCP), Admissions and Discharge (A&D), Visits and Correspondence (V&C), Security Administration.

.2 Second Floor - Management Centre (MC), Administrative, Information Technology (IT) and Finance Services.

.3 Third Floor - Human Resources (HR), IT Storage, Staff Training, Institutional Emergency Response Team (IERT), Staff Lounge.

.4 Basement – Main Communications Control Post (MCCP), ContractorsTechnical Repair Area (ADGA Contractors), Security Maintenance Officers (SMO).

.5 Fourth Floor - Staff Fitness Area.

.4 The intention is that these functions continue during building redevelopment activities. Some functions may be able to be decanted into other buildings in the vicinity.

.5 The following areas and dimensions are based on the best information to date considering that the original plans of the building have long been lost. The areas are considered approximate (excluding exit stairs) and only suitable for broad planning.

.6 For any detailed design and construction documents, dimensionally accurate drawings must be compiled by the Consultant.

.7 General overall exterior building dimensions 13.7 m X 67.2 m (excluding exit stairs).

.8 General overall interior building dimensions, 12.0m X 65.0 m.

.9 The following table data is a summary of the space area calculations:

FLOOR LEVEL	GROSS INTERIOR M^2	GROSS BUILDING M^2
MAIN	866.24	1041.98
SECOND	729.20	960.80
THIRD	792.33	960.10
SUB-TOTAL 1	22387.77	2962.88
BASEMENT	785.58	913.70
SUB-TOTAL 2	3173.35	3876.58
FOURTH *	441.28	563.88
TOTAL	3614.63	4440.46

* Vaulted rafter ceiling, Mechanical Rooms approx 100 m^2 and Staff Exercise Area 340 m^2 , remainder of typical floor area is attic space.

.10 Floor to floor heights;

.1	Basement level	3.0m
.2	Main floor	4.6m
.3	Second floor	4.1m
.4	Third floor	5.2m (North), 4.1 (South)
	Fourth floor	North “Attic”, South, vaulted ceiling to u/s of roof,3.8m @ high point

.3 Architectural/Structural

.1 Overall building structure is steel frame encased in concrete – walls and roof structure.

.1 For the purposes of the BDP the concrete was considered fireproofing and not part of a composite structural system. A further detailed review by the Design Consultant team is required.

.2 The North structure is three storeys. Deep trusses span clear across the third floor forming a cold attic – the suspended 3rd floor ceiling also does not appear to be insulated. The column structure supporting the 3rd, 2nd, and Main floor runs down the centre.

.3 The South structure is four storeys with a rafter roof structure, supported on two of columns down the centre. The column structure continues down through the building.

.4 The centre structure clear spans the 9 meter width throughout the floors above grade. In the basement there are additional columns to originally support a dropped vehicle slab.

.5 A preliminary estimated safe office loading of 2.4Kpa was assumed for the BDP.

.6 A detailed structural analysis must be conducted by the Consultant Team, to determine available loading capacity and any need for reinforcement for new or relocated functions.

.7 Exterior wall:

.1 Original drawings indicate an exterior wall made up of roughly dressed (ashlar) limestone and monolithically placed, steel encasing concrete (wall, floor and roof). Original drawings indicate a 50 mm capillary gap/air space separating the concrete from 100 mm clay tile finished with 25 mm painted plaster. The capillary gap and clay tile appear to have been deleted, leaving the concrete to be directly finished with painted plaster. This painted plaster does not continue to the underside of the slab but terminates approximately 600 m short.

.8 Predominately the effective limestone and concrete wall thickness for the first level is 610 mm and 530 mm for the second level. The 530mm dimension is assumed to apply to the third and four levels.

.9 The concrete placement appears continuous, wall to floor to eave and roof structure and may be performing as a somewhat continuous air barrier except where interrupted by penetrations, cracks and porosity.

.10 Roof:

.1 Original roof - metal and “homogeneous” insulation between metal roof wood strapping. Re-roofed in the mid 70’s with metal but insulation value is unknown. For the purposes of the BDP the insulation was considered as not existing.

.2 North structure, cold attic space, sloping concrete slab on clear span trusses and a suspended 3rd floor ceiling. There is a potential that this space may be partially vented. The Consultant Team will need to perform a more detailed investigation.

.3 South structure, 4th floor, Staff Fitness Area, batt insulated vaulted ceiling and walls. Ceiling assembly, insulation to what appears to be to the full depth of the rafters, vapour barrier and painted gypsum board. Area was retrofitted 1979.

.4 Centre concrete structure, exposed at the fourth floor level, supports the Bell Tower.

.11 Windows:

.1 Existing Conditions:

.1 Existing wood windows were replaced in the mid 70's, with thermally broken aluminium frames (interior glazed), sealed glazing units and bottom horizontal sliders.

.2 The overall window thermal performance, glazing and frame combined, is assumed to be RSI < 0.16 (R<1).

.3 The performance estimate is based on earlier versions of minimally thermally broken frames, metal glazing spaces and operable sliders.

.4 Air leakage paths around the outside edges of the frame and through the framework junctions are to be determined by the Consultant Team and addressed by appropriately designed remediation measures.

.12 Exit Stairs

.1 These stairs had been added in the mid 70's and have been previously reviewed by the Office of Federal Fire Protection Engineer. While the stairs had not been accessed during the BDP it is most likely that some level of upgrade will be required.

.2 Most stairways do not conform to current building code requirements.

.13 Hazardous Material

.1 An investigation study of hazardous material is currently on-going.

.2 General status at this time:

.1 Asbestos

.1 Majority of the asbestos appears to have been removed (pipe insulation and ceiling tile).

.2 Asbestos bearing vinyl tile still present.

.3 There is a potential that asbestos is in the existing plaster finish – This will need to be tested and abated as part of the redevelopment.

.2 Lead

.1 Potential for lead in original paint – Paint will need to be tested and abated as required during the redevelopment.

.3 PCB's

.1 To Be Determined by the field investigation study.

.4 Mercury

.1 To Be Determined by the field investigation study.

.4 Mechanical

.1 Humidification

.1 The humidification system is inoperative, as a result the overall space relative humidity levels are very low. Typical readings taken January, 2008 were:

.1 First floor, 9.4 to 15% RH.

.2 Second floor, 4.1 to 8.1% RH.

.3 Third floor, 3.4 to 14.5% RH.

.4 Fourth floor 9.4% RH.

.2 Heating

.1 The primary source of heat for the building is steam. Steam is generated on site by two boilers that are located in the Steam Plant and connected through an underground tunnel to the basement of this building.

.2 A steam/hot water heat exchanger in the basement provides hot water for convectors and radiation on the main, second and third floors. All units have a built-in control valve except the Warden's area on the second floor and the Visiting area on the main floor that has a thermostatically controlled valve.

.3 Ventilation

.1 The building is partially ventilated. There are two penthouses on the fourth floor of the centre block.

.2 The East penthouse houses two air handling units with steam coils. One unit serves the south portion of the main floor. The other unit serves the Principal Entrance on the Main Floor.

.3 The West penthouse houses an air-handling unit with steam coils that serves the second floor except the Finance section and the third floor. The washroom exhaust fan is located in this penthouse.

.4 The fourth floor gymnasium is heated and ventilated by an air-handling unit with a steam coil that is located in the ceiling space.

.5 The Visiting area and offices on the main floor are ventilated by an air-handling unit, with an electric heating coil that is located in the ceiling space. No humidification is provided. Outside air is provided from a wall grille.

.6 Controls are pneumatic type.

.4 Air-Conditioning

.1 The building is partially air-conditioned via:

.1 a stand-alone air unit in Finance (2nd floor) (a split system air cooled air-conditioner; no outside air).

.2 window air-conditioners serving some main, second and third floor offices.

.3 the Principal Entrance and Keeper area on the main floor (served by a split system air cooled air-conditioner).

.4 the Main Communication Control Post (MCCP) and office in the basement system (an air handling unit that has an electric heating coil, split system air cooled air-conditioner and an outside air connection) and

.5 Telephone Room and Computer Room in the basement (each served by a floor mounted, water-cooled air-conditioner; two air-cooled units were to replace these two units March 2008).

.5 Plumbing

.1 Male and female washrooms exist on the main, second and third floors. Many washrooms do not meet barrier free design or current building code.

.2 Refrigerated drinking fountains exist on the main, second and third floors.

.3 The cold water and sanitary sewer lines are connected to the central system in the tunnel.

.6 Fire Protection

.1 The building is not sprinklered.

.2 A standpipe system with fire hose cabinets and fire extinguishers exist on all four floors.

.3 Four Siamese connections exist around the building for the standpipe system.

.5 Electrical

.1 All existing systems are to be reviewed and confirmed on site. Available background information on some systems are noted below.

.2 Normal and emergency power distribution throughout the site is owned by CSC.

.3 Normal Power System.

.1 Normal power for the Administration building is three phase 600 volt, fed by a loop method. The power is fed underground from a circuit breaker in the kitchen building distribution CDP panel, and continues to the hospital distribution CDP panel, via 6-#3/0AWG wires in 2 – 100 mm conduits. The main distribution center is in the basement of the building and consists of a 400A, 600V, 3 phase, 3 wire CDP panel, a 400A, 600V splitter for the vault distribution, and a 200A, 600V splitter in the mechanical room. The splitters feed 600V - 120/208V transformers of various sizes, which then feed 120/208V panelboards to provide power distribution throughout the building.

.4 Emergency Power System

.1 Emergency power for the Administration building is 3 phase 600 volt, fed by a loop method. The power is fed underground from a circuit breaker in the kitchen building distribution CDP panel, and continues to the hospital distribution CDP panel, via 3-#3/0AWG wires in a 100 mm conduit. The main distribution center is in the basement of the building and consists of a 400A, 600V, 3 phase, 3 wire CDP panel. This panel feeds Panel EM-AA, a 225A, 600V, 3 phase, 3 wire panelboard. This panel feeds a sub panel for door control in the principal entrance, a panel for perimeter lighting, a 45 kVA 600V - 120/208V transformer in the MCCP, and a 75 kVA 600V - 120/208V transformer which feeds the MCCP. There are two UPS systems in the basement, feeding essential equipment.

.5 Telephone System

.1 The telephone system for the building consists of a Mitel 200 PBX system, allowing internal and external telephone service.

.6 Interior Lighting System

.1 The lighting system in the building consists of T-8 fluorescent fixtures, local switched. Light fixtures are fed from both normal and emergency power panels.

.7 Emergency Lighting System

.1 The building is equipped with an emergency lighting system consisting of battery banks and remote light heads located as required by the National Building Code. The battery banks also provide emergency power to the exit lights.

.8 Exit Lighting System

.1 The building is equipped with exit lights at all exits and along paths of egress as required by the National Building Code. All exit lights are bilingual, and are compact fluorescent type, are fed from emergency power panels, and are also connected to emergency battery banks.

.9 Fire Alarm System

.1 The building fire alarm system is a Cerberus Pyrotronics addressable system, and consists of a main control panel with annunciators, manual pull stations, heat detectors, and bells. The fire alarm panel is located in the MCCP and in addition to providing fire protection for the building; it also serves as a site fire alarm panel, and monitors all the other buildings.

.6 Furniture

.1 It has been determined that all work station furniture will be replaced by SMI via their own procurement. Work station layouts are to be provided by the Consultant based on current CORCAN catalog components.

.2 For background information, the typical office furniture currently within the SMI Administration Building includes the following:

.1 Current workstations consist primarily of CORCAN Workstation Generation I components with the some Generation II components.

.2 Many current workstations rely on the CORCAN metal structure to support horizontal work surfaces and to hang overhead bins and lack fabric panel inserts to accommodate acoustical or visual privacy.

.3 The horizontal metal supports of the CORCAN Workstation I metal frames that support work surfaces, overhead bins and act as stabilizers (at floor level) limit the orientation of panels, which will impact on space planning flexibility and accessible design.

.4 Many panels that provide seated-height privacy or lower are not load bearing in nature and will impact on space planning flexibility.

.5 Work surface and overhead bin heights of existing CORCAN Workstation components are not readily adjustable and will reduce the flexibility to accommodate accessible design.

.6 Colours/finishes, trim and edge details of workstations vary through the building and in some cases within the same workstations.

.7 Some workstations have a combination of CORCAN Workstation Generation I and II components within the workstation.

.8 Less than 5% of the workstations are equipped with powered panel components to allow for power/data distribution

.9 CORCAN Workstation I and II Systems Furniture cannot accommodate the standard requirements of 3 circuit, 6 wire for general open office planning; as a result, each workstation will most likely require one power feed each in an open concept floor plan.

.10 Lockable overhead storage units are defective and can be manually opened with little effort in the locked position.

.11 Certified CORCAN installation crew were not involved with the installation process of the existing workstations; therefore, the functional integrity of the workstation components has been or may have been compromised.

2.2 PROJECT OBJECTIVES

2.2.1 OBJECTIVE ONE: IMPROVE SECURITY AND CIRCULATION

.1 Improve the circulation and security on the ground floor. This is the institution's pedestrian entry point and is where all visitors and staff entering the institution are processed. Security staff needs to access their lockers prior to being processed through the main entry.

.2 Improve the line of sight and security within the building with a plan that relocates the Main Communications Control Post and Central Equipment Room from the basement to an upper floor. Relocate the Armoury to the main floor to improve monitoring and circulation efficiency.

2.2.2 OBJECTIVE TWO: BUILDING PERFORMANCE

.1 By taking into consideration on the existing conditions of both the physical and heritage nature of the existing administration building, and as well, due to limited financial resources, the design consultant will envision a transient design for the interior building refit project that will be in compliance with the current codes and standards.

.2 Centralize the washrooms on each floor. Provide new vertical circulation, including an elevator, to service the main, second and third floors.

.3 Provide improved workplace comfort levels throughout including heating, ventilation, humidification and the addition of air-conditioning.

.4 Provide Barrier Free Access to Treasury Board Standards.

.5 Meet all Building and Fire Code requirements or provide reasonable equivalencies where existing conditions may preclude prescriptive solutions.

.6 Improve the net to gross ratio for the building targeting the ratios indicated in the Accommodation Guidelines.

.7 Remedy or reduce operational problems currently being experienced in the building.

.8 Provide advanced, but proven, building systems and technologies (architectural, structural, mechanical, electrical, security electronics, conveyances, etc.) to support contemporary operating requirements and have capacity to accept projected demands for the near future. This objective would include

.1 Energy conservation of mechanical systems,
.2 Good air quality (to Canadian Labour Code).
.3 Structural reinforcing where required,
.4 Enhancement of existing assemblies for performance and durability,
.5 Information network systems,
.6 Surveillance/Security system, and

.7 Electrical energy conservation through the use of energy efficient light fixtures, motion sensors, high-efficiency motors, etc.

.9 Where possible, free up areas in the institution to deliver required additional programs and to carry out administrative functions.

.10 Be as economical as possible to operate and maintain, while satisfying operational, security, and other requirements.

.11 Ensure security performance and a fail secure lock mode in the event of power failure as standard for all egress doors in inmate occupied areas.

2.2.3 OBJECTIVE THREE: QUALITY DESIGN AND CHARACTER

.1 Reconfigure and redistribute functional areas to optimize security control and daily operations, along with emergency response requirements; consider spatial quality/quantity, adjacencies, line of sight visual control, etc.

.2 Reconfigure and size office areas to optimize functional operations, considering open and engaging office environments as well as possible re-use of existing enclosed offices where and if required.

.3 Create common boardrooms and other support facilities (in accordance with CSC Accommodation Guidelines) and central washroom facilities for each floor.

.4 Where existing area is impacted, improve the space and bring it up to the quality as described in the CSC Accommodation Guidelines and CSC Technical Criteria Document.

.5 Create stimulating interior environments responsive to the needs and aspirations of the client.

.6 Consider flexible and functional building zoning layouts to meet changing operating requirements.

.7 Increase access to natural light.

.8 Design for welcoming access by visitors while respecting security requirements.

.9 Maintain Federal Heritage Building character where redevelopment impacts heritage features (exterior facade).

.10 Finishes are to be of appropriate aesthetics, tamper-proof, durable and easy to maintain.

2.2.4 OBJECTIVE FOUR: SUSTAINABLE DESIGN PRINCIPLES

.1 Where reasonably possible, conform to good sustainable design principles in building retrofit design.

.2 Outline and specify sustainable requirements to be implemented during the construction process.

.3 Comply with the CSC Green Building Design Checklist.

.4 Comply with environmental requirements during construction and design to minimize lifetime environmental impact, and

.5 Select materials that offer sustainable construction methods, as well as durability and serviceability for ease of ongoing maintenance and operations.

3 SELECTED REDEVELOPMENT

3.1 REDEVELOPMENT – BASIC SCOPE

3.1.1 GENERAL

.1 Explore 2 different layout options and present with written analyses on the basis of:
- .1 Operational efficiencies,
- .2 Functional unit 'suites'; access to egress via primary circulation only,
- .3 Spatial quality of the work space environment,
- .4 Capital cost impacts,
- .5 Constructability,
- .6 Maintenance issues,
- .7 Life-cycle cost impacts
- .8 Phasing possibilities to minimize disruption of activities,
- .9 Flexibility for future changes.

3.1.2 ARCHITECTURAL/STRUCTURAL

.1 General
- .1 The consultant shall investigate and confirm the locations of the existing structural elements (walls, columns, beams, etc.).

- .2 Ensure that any special floor loading requirements that may come about while trying to maximize operational efficiencies, such as high density storage, are flagged early in the process and feasibility (location, structural reinforcement, cost, etc.) confirmed.

.2 Vertical Circulation
- .1 Consider a new elevator and stair addition on the exterior, east side of the building to minimize impact on the building's heritage character and building operations. Consider access points using existing window openings.

.2 Elevator to service main, 2nd and 3rd floors.

.1 Elevator access to the basement may be deemed too difficult due to less than 3m ceiling height and presence of overhead services and major pipe service along the floor. Confirm that there are no feasible options for elevator service to the basement.

.3 Constructing a passenger elevator and stair on the exterior has least impact on operations during construction and potentially the greatest impact on reducing redevelopment schedule.

.4 Note that there is a service tunnel running from the centre of the east foundation wall westwards towards the interior of the institution. Ensure the elevator and foundations of the addition do not interfere with this tunnel.

.3 The addition foundation and superstructure must be developed for the optimal interface with existing conditions, such that differential movement is minimized and well controlled through appropriate detailing.

.4 The design of the addition must respect the heritage character of the building.

.5 Existing lift is to be removed and consideration being given to the shaft being fire rated and utilized as a riser for systems such as voice/data cabling.

.6 Fire Safety Upgrades

.1 A complete Building Code analysis will be required of the Consultant in respect of the re-development objectives contained in the TOR and this Project Brief. As part of the analysis, the consultant is to complete the HRDSC Building Code Data Sheet. Key known requirements highlighted at this time include:

.1 Provision of required fire rating enclosures around all internal stairwell connections (confirm 2 hour fire rating that had been assumed in BDP).

.1 Central staircase is considered a third fire exit off a floor area. In addition to a fire rated enclosure throughout all the floors, at the main floor level, require a rated access to an exit out the east face of the building. Consider incorporating a new central stair with the elevator addition noted above so as to achieve a proper fire rated enclosure while recapturing floor space taken up by the existing stair in the central part of the existing floor plate.

.2 Investigate basement exiting and determine optimal approach to meeting Fire Code requirements including the possibility of staff locker relocation.

.3 Provide fire rated closures at all tunnel locations in the basement.

.7 Functional/Operational Layout.

.1 Basement

.1 Consider restricting basement to storage and/or temporary occupancy to minimize Building Code upgrade requirements.

.2 The MCCP and CER are to be planned for relocation to an upper floor. The MCCP and CER shall be operational 24/7 without interruption. The MCCP and CER design and layout shall permit uninterrupted transition from the existing to the new system.

.3 The office for the Security Maintenance Officers (SMO) is to move upstairs. Storage may remain in the basement.

.4 Offices for the ADGA technicians are to move upstairs. ADGA storage may remain in the basement.

.5 The main IT server and main telephone system room are ideally moved above grade.

.6 Staff lockers are ideally located on the main floor but could be located in the basement if circulation requirements can be achieved.

.7 Inmate effects storage could return to the basement. Facilitate access from A&D.

.2 Main Floor

.1 Central Floor Plate/East Addition

.1 Reconfigure the principal entrance from west to east facades in its entirety**.** Space in the proposed east addition may also be used. Update this area to meet the Accommodation Guidelines and Technical Criteria Document requirements. Required re-fit work includes a new vestibule and door arrangement and waiting/locker/security scanning area. The location of the control post to must be evaluated to optimize movement, security and sightlines.

.2 Consider the location of and access to the new vertical circulation.

.3 South Floor Plate

.1 Improve space efficiency and circulation. Eliminate the double corridor.

.2 The armoury must be located where it can be easily accessed in an emergency. The entrance must be from a non-inmate area and a movement path for arms is required that doesn't pass through an inmate zone or the main lobby. Locate the armoury away from the exterior wall. There will be a sub armoury in the IERT area on the third floor.

.3 The SMO office should be close to the armoury.

.4 Staff lockers need direct access from outside the perimeter or from the preprocessing area of the principle entrance to allow staff to drop off coats before entering the institution. This area may be located in the basement if circulation requirements can be achieved.

.5 Staff lounge and mailbox area is inside the secure perimeter.

.6 Admission and discharge may remain at the south end. Inmate access will be from door 131B and will be controlled from within the department. Facilitate access to inmate effects storage area.

.4 North Floor Plate

.1 Visitors and Correspondence suite refit. Fit-up limited to new finishes and required Building Code upgrades.

.5 2nd Floor

.1 Central Floor Plate/East Addition

.1 Existing washrooms demolished to open up office suite. Provide core washrooms based on occupant load.

.2 The MCCP and CER could be accommodated in the east addition or in the south wing. These areas must conform to the requirements in CSC's Accommodation Guidelines and Technical Criteria Document including secure construction, raised flooring and no windows. Access must be from a non-inmate area.

.1 Consider the location of and access to the new vertical circulation.

.3 The existing Warden' office should remain in the centre with the rest of the Management Centre in the south wing.

.2 South Floor Plate

.1 Finance to be redeveloped as needed to address improved space efficiency and circulation.

.2 Management Centre to be redeveloped as needed to address improved space efficiency and circulation.

.1 Shared boardrooms are added.

.3 North Floor Plate

.1 Existing office spaces to receive new finishes and required Building Code upgrades.

.2 Existing washrooms may be removed and space fit up for generic use.

.6 3rd Floor

.1 Centre Floor Plate/East Addition

.1 Provide centralized washrooms based on occupant load.

.1 Consider the location of and access to the new vertical circulation.

.2 Additional area may be used to accommodate programmed office space.

.2 South Floor Plate

.1 Redevelop to accommodate Security Administration and Case and Sentence Management.

.2 Security Administration is a non-inmate area.

.3 Case and Sentence Management will have controlled inmate access.

.4 Extra space on the floor could be considered for the informatics room and main telephone room which are currently in the basement. Verify area and location requirements.

.3 North Floor Plate

.1 The IERT remains in the north wing. Locate a new sub-armoury in the area – room 303C is suggested. Secure construction is required for this space.

.2 Storage room 308 to be fit up as a shared boardroom.

.7 4th Floor

.1 Mechanical services rooms require new fire rating (and appropriate closures for mechanical service penetrations).

.8 Finishes/Equipment

.1 With exception of the 4th Floor Fitness Area, new paint, flooring, ceiling tile and light fixtures throughout.

.9 Building Envelope

.1 Windows

.1 Determine air leakage paths around or through window frames. Detail an appropriate air seal with continuity to the interior plaster to prevent all air infiltration and exfiltration.

.2 Caulk exterior window framing to stone to prevent water entry but allow weep/vents to avoid trapping moisture within the window or wall systems.

.3 Existing blocked out windows concealing ceiling plenum to remain as is.

.4 Replace all broken sealed units.

.5 Develop options for sealing operable sashes; confirm with mechanical sub-consultant that air quality will be met by ventilation systems; discuss sash sealing impacts and options with Department Representative and CSC prior to implementation.

.6 During design stage confirm with mechanical sub-consultant that condensation will not result. If condensation is deemed likely, provide options for mitigation.

.2 Exterior Building Wall – Interior Face

.1 All Floor Levels

.1 Assess performance of all portions of exterior walls.

.2 Where unfinished walls exist (eg. above ceilings, stairwells, etc.) insulate and cover with new painted paperless gypsum board (or equivalent).

.1 Consider all insulation options (including spray-on-foam (open cell low VOC, spray-on vapour retarder, painted gypsum board).

.3 Ensure wall air tightness.

.1 Repair and complete existing interior plaster finish to ensure continuity slab to slab.

.2 Re-paint with primer and vapour barrier coating.

.3 Roof

.1 Base

.1 It is recommended that during design development the Design Consultant, confirm building durability if the existing roof is retained without upgrade.

.2 North building attic

.1 Ensure integrity of existing ceiling as an air barrier, new paint, vapour retarder paint system.

.2 Seal penetrations.

.3 Install moisture detection monitors.

3.1.3 MECHANICAL

.1 General

.1 The HVAC system will provide humidification and must maintain a neutral or negative pressure to prevent damage to the envelope due to moist air entering the wall system. All ductwork will be in the ceiling space.

.2 Mechanical systems controls will need to be DDC (direct digital) as per CSC's requirements.

.3 The Institution complex has a central Powerhouse with two boilers, which feed steam to all locations. Air handling units and heat exchange equipment are situated in local mechanical rooms.

.4 Domestic hot water heating and air handling units can be connected to the existing institutional heating system but should be verified for suitability. Investigate the addition of a domestic hot water recirculation system.

.2 Heating

.1 Replace the entire heating system with a hydronic system. Hot water/glycol supply will be via a steam to hot water/glycol heat exchanger in the basement.

.2 Use baseboard radiation and/or convectors on the three floors.

.3 Ventilation

.1 Investigate the use of variable frequency drives.

.2 Basement, Main and 4th Floors

.1 The renovations have minimum affect on these floors. Therefore, modify the existing ventilation systems to suit the revisions.

.2 Until confirmed by a more detailed design investigation, it is anticipated that approximately 33% of the systems will need to be replaced.

.3 2nd and 3rd Floors

.1 The renovations on the second and third floors provide an opportunity to replace the systems and make modifications as required to accommodate the renovations. Therefore, it is recommended that the air handling unit in the West penthouse that serves these two floors as well as the stand-alone air unit with a split system air cooled air-conditioner in the Finance section on the second floor be replaced.

.2 In order to provide humidification HVAC unit(s) should be designed to provide a neutral or negative pressure.

.4 North Attic

.1 Provide moisture detection and interconnected mechanical ventilation with makeup air.

.4 Air-Conditioning

.1 Basement, Main and 4th Floors

.1 The renovations have minimum affect on these floors. Therefore, modify the existing systems so suit the revisions.

.2 Until confirmed by a more detailed design investigation, it is anticipated that approximately 33% of the systems will need to be replaced.

.2 2nd and 3rd Floors

.1 Investigate and allow for the inclusion of a split system air cooled air-conditioner for the air handling unit(s).

.3 Design to accommodate a separate split system with indoor fan and exterior condensing unit for the MCCP area.

.5 Controls

.1 Provide direct digital controls (DDC) in conjunction with CSC's requirements.

.6 Plumbing

.1 Piping

.1 Replace all drainage waste, vent and domestic water piping in the building since the age of the building does not warrant reusing any piping.

.2 Replace the 250 mm horizontal drainage line in the basement since it is leaking and is patched with tar.

.2 Plumbing Fixtures

.1 Replace all plumbing fixtures since they are old. Consideration could be given to reusing some fixtures if they are in good condition.

.2 Provide standard lavatories, showers and refrigerated drinking fountains; shower valves shall be pressure balancing type.

.3 Provide standard water closets or dual flush type.

.4 Use standard urinals or waterless type.

.5 Faucets – provide standard faucets or electronic faucets for lavatories.

.6 Flush Valves - provide standard or electronic flush valves for water closets and urinals.

.7 All fixtures should meet barrier free standards as required.

.7 Insulation

.1 Provide pipe and ductwork insulation of preformed rigid or flexible mineral fibre (with vapour retarder barrier where required). Cover Insulation in exposed areas with canvas jacket.

.8 Fire Suppression

.1 Provide an NFPA compliant wet sprinkler system with fire hose cabinets and fire extinguishers on each floor

.1 Investigate the need for fire pumps.

.2 Provide a pre-action system in critical areas (exact areas to be determined with CSC Departmental representative.)

.3 Provide an inert gas system (ozone friendly) in the MCCP area.

.4 Provide upright, recessed or wall mount type sprinkler heads as required. Provide institutional (tamperproof) heads where required.

3.1.4 ELECTRICAL

.1 Power Distribution

.1 Maintain the existing power distribution system. Provide new panelboards as required to accommodate areas of renovation.

.2 In the ceiling space, provide an extension of existing power system to provide power to furniture systems; conceal in existing or new walls; avoid power poles.

.3 In large areas of renovations, (e.g. entire group renovations or relocations), provide new power ceiling or under floor power distribution system to provide power to furniture systems.

.2 UPS Power Distribution

.1 Provide a new UPS system to replace the existing system, complete with new batteries, racks, annunciator panels and all related equipment.

.3 Interior Lighting System

.1 Provide a new interior lighting system throughout the building.

.2 Use fluorescent energy saving T5 or T8 lamps and energy efficient electronic ballast. Use LED lighting where appropriate and/or preferred.

.3 Lighting system is to be designed in accordance with Manitoba Hydro Power Smart Program.

.4 Lighting Control System

.1 Manual control will generally consist of line switches

.2 Single manual switches shall be provided in single person offices, conference rooms, and storage rooms.

.3 Occupancy sensors may be utilized to reduce energy usage.

.5 Exit Lighting System

.1 Provide a new exit lighting system throughout the building.

.2 All exit lights are to be graphic LED style, and are to conform to CSA C860-01.

.6 Emergency Lighting System

.1 Emergency lighting will consist of individual battery banks.

.7 Fire Alarm System

.1 Provide evaluation of existing fire alarm system detailing remaining useful life, system capacity, availability of components, feasibility for re-use in the renovation, etc.

.2 Report findings to PWGSC and CSC for decision on re-use or new.

.3 Provide additional zone hardware and software as required to accommodate and incorporate all new sprinkler zones (flow and tamper).

.4 Provide new initiating and audible devices as required in renovated area.

.1 Alternatively to reuse of the existing FA System,design, detail and specify a new addressable building fire alarm system in accordance with the National Building Code and Treasury Board Fire Protection Standards, based upon recommendations from above evaluation. The new fire alarm system will be linked with other buildings at the existing main panel in the Main Communication Control Post (MCCP).

.8 Structured Wiring System

.1 Provide a new structured wiring system complete with new data/telecommunications rooms throughout the building.

.2 The system is to be designed in accordance with latest version of all applicable standards.

.3 Provide new MT/ER room in the basement in an area well protected from water/DWV services. Relocate all equipment to the new room.

.4 Investigate zoned conduit system or cable trays for telecommunications pathways.

.5 Information network systems will be required to each office and/or workstation, connected to the existing system. A dedicated LAN room may be required.

.6 The structured wiring system shall utilize Category 6 wiring.

.9 Voice Communications System

.1 Provide a new public address system for the building.

.2 Investigate an integrated telephone/public address system.

.3 In conjunction with the fire alarm system evaluation and recommendations, investigate provision and implementation of an integrated fire alarm voice communication system.

3.1.5 SECURITY

.1 Security System

.1 Complete an inventory of existing Security System Capabilities, verify that these systems are functioning effectively and continue to meet Institutional and ESS requirements, and

.2 If this is the case, prepare designs to ensure that they are relocated or replaced with equivalent functionality while accommodating modifications that may be required to accommodate renovations;

.3 If this is not the case, prepare designs to ensure that they are replaced with equivalent and additional functionality while accommodating modifications that may be required to accommodate renovations.

.4 In each instance, designs must be reviewed with the Chief Electronic Systems Maintenance (CESM) for Prairies Region.

.5 Investigate the requirements for access control and provide recommendations to meet identified user needs. Recommendations must consider the appropriateness of the technology including associated maintenance, administrative and support needs. Designs must be reviewed with the CESM for Prairies Region.

.6 Provide an empty conduit system for a new closed circuit television system in accordance with Correctional Services Canada security requirements as well as conduit systems for any additional security technology that supports building access and monitoring requirements.

.7 Where required, additional security and operation systems, e.g. door controls, will be selected and designed for integration into the MCCP. Designs must be reviewed with the CESM for Prairies Region.

3.1.6 MAIN COMMUNICATION CONTROL POST (MCCP) AND CENTRAL EQUIPMENT ROOM (CER)

.1 MCCP/CER Relocation

.1 The MCCP and the CER will be relocated from the basement to the new location on the upper floor.

.2 Typically the Security Servers, Radio Base Stations, UPSs and other “back office” equipment associated with the Electronic Security Systems are located in a Common or Central Equipment Room adjacent in close proximity to the MCCP. The MCCP and CER must be designed and built to accommodate the equipment from the existing MCCP and CER and must be built to meet CSC’’s Technical Criteria for these types of Control Post.

.3 Provide new rooms and room layouts to accommodate all equipment i.e., one room for the MCCP, one room for the CER. The UPS, batteries, etc. could be located in a mechanical/electrical room.

.4 Fully maintain existing operation of the MCCP during renovations.

.5 The physical move of the existing MCCP and CER to the new space on the upper floor will be required. The systems to be moved may include, but are not limited to the systems listed below. Refer to Appendix 5, Electronic Security Environment – Security and Communication Systems, for a definition of these systems.

.1 Security Systems
- .1 Perimeter Intrusion Detection System (PIDS)
  - .1 Motion Detection System (MDS)
  - .2 Fence Disturbance System (FDS)
  - .3 PIDS Public Address System (PIDS PA)
  - .4 PIDS Closed Circuit Television (PIDS CCTV)
- .2 Facility Alarm Annunciation System (FAAS)
- .3 Personal Portable Alarm System (PPA)
- .4 Personal Portable Alarm - Locatable System (PPAL)
- .5 Fixed Point Alarms (FPA)
- .6 Supplementary Intrusion Detection System (SIDS) CCTV
- .7 General Closed Circuit Television (CCTV)

.2 Communications System
- .1 Radio System
- .2 Telephone System
- .3 Public Address System (PA)
- .4 Intercom System
- .5 Messaging System
- .6 Operational Voice Logger
- .7 Cell Call System

.3 Operational systems
- .1 Guard Tour System
- .2 Door Control System
- .3 Inmate Voice Intercept and Recording System

3.1.7 IMPLEMENTATION STRATEGIES

.1 Staging

.1 During fit-up of various Functional Unit suites, swing space outside the building will be required.

.2 Decommissioning the existing lift creates an opportunity for vertical and centralized stacking of Informatics' wiring making structured wiring ready for potentially completed phased redevelopment.

.2 Phasing

.1 Fire suppression, fire rating and other related work may need to be phased.

.2 Provisions must be made to maintain the mechanical systems operational during the renovations. However, there will be a challenge to provide ventilation on the second and third floors particularly during winter months. Consider use of existing windows (if operable) for short term ventilation during construction.

.3 All electrical power, lighting, systems and other related work will need to be phased in accordance with architectural and mechanical work.

.4 Consider phasing horizontally by floors and/or vertically by zones.

.3 Schedule Commentary

.1 The exterior elevator location recommended would tend to reduce schedule, compared to trying to locate it within the existing core.

.4 Risk Commentary

.1 Risk Concerns:

.1 Front entry and related area.

.2 Phasing in telecommunication system at each stage of redevelopment.

.3 Temporarily allowing North and South exit stairs to be used for daily floor to floor circulation.

3.2 SCOPE OPTIONS

3.2.1 ARCHITECTURAL OPTIONS

.1 Building Envelope

.1 Given that improvement of the building envelop air/vapour barrier can achieve some energy savings and benefit the proposed HVAC upgrades, consideration should be given to maximizing and enhancing the existing construction with air barrier sealing beyond the base specified window and wall air sealing. Provide a cost benefit analysis of this option for review and approval of the Department Representative and CSC.

.2 Building Core and Service Area

.1 Consider design options that will provide an effective and efficient method for floor-to-floor circulation in the central core while providing a fire separated exit facility.

.3 Off-Set Floor Plate Circulation

.1 Consider off-setting primary circulation along exterior walls (single loaded corridor) for access to Functional Unit “suites” and exit stairs, to maximize the available floor plate depth to accommodate open and enclosed areas.

.2 Note that the existing double loaded corridors result in:

.1 Primary circulation cutting through some Functional Units creating security concerns.

.2 The remaining space on either side of the corridor sometimes being “disproportioned”, too large for individual workstations and too small for combined workstations resulting in workstations being combined with what should be common storage of files, equipment etc.

3.2.2 MECHANICAL OPTIONS

.1 Heating:

.1 Confirm that a hydronic (propylene glycol solution) system with a steam to hot water heat exchanger is the most feasible. Include baseboard radiation below windows to counteract the downdraft.

.2 Option 1: As a way of budget control, investigate an alternate plan of retaining as much of the ventilation systems as possible, while still converting the heat source to hydronic.

.3 Option 2: Provide a hydronic ceiling radiant heating panels along the perimeter. This could provide additional usable floor space.

.2 Ventilation

.1 General

.1 A basic HVAC system to provide humidification and maintain a neutral or negative pressure to prevent damage to the envelope from interior moisture. All ductwork should be in the ceiling space.

.2 Providing moisture detection and interconnected mechanical ventilation with makeup air for the north attic.

.2 Options to be considered:

.1 Use a variable air volume system with air boxes and variable frequency drive fan motors.

.2 Mixed ventilation that is a combination of natural and mechanical ventilation.

.3 Air-Conditioning

.1 Option 1

.1 Use a separate split system with indoor fan and exterior condensing unit for the MCCP area.

.2 Other options to be considered:

.1 Use split systems with indoor fans and exterior condensing units for all office areas.

.2 Use an air cooled chiller for air-conditioning for all office areas.

.4 Plumbing

.1 Domestic Hot Water System Options to be considered:

.1 Use water from “B” Range.

.2 Use instantaneous heaters at the lavatories and showers.

3.2.3 ELECTRICAL OPTIONS

.1 Power Distribution

.1 Plug-in wiring distribution system option:

.1 Consider and evaluate the versatility, convenience, technical and economic performance of these types of systems.

.2 Lighting Control System

.1 Base system on manual control consisting of line switches, low voltage switches, time switches, photo-controls and contactors and other switches.

.2 Occupancy sensors may be considered to reduce energy usage.

.3 Emergency Lighting System

.1 Centralized inverter,

.2 Individual battery banks, or

.3 Fluorescent fixtures with integral emergency lighting ballasts.

.4 Fire Alarm System

.1 Use existing fire alarm system after evaluation of remaining useful life, system capacity, availability of components, etc. and discussion with Department Representative and CSC on most feasible approach, and

.2 Consider provision of a new addressable building fire alarm system in accordance with the National Building Code and Treasury Board Fire Protection Standards, based upon recommendations from above evaluation.

.5 Structured Wiring System

.1 Base: provide a new structured wiring system for telecommunications pathways throughout the building.

.2 Alternative 1: zoned conduit system or

.3 Alternative 2: cable trays.

.6 Voice Communications System

.1 Base: provide a new public address system for the building.

.2 Alternative 1: Investigate an integrated telephone/public address system.

.3 Alternative 2: In conjunction with the fire alarm system evaluation and recommendations, investigate provision and implementation of an integrated fire alarm voice communication system.

3.2.4 ELECTRONICS SECURITY SYSTEM

.1 MCCP and CER

.1 This project must include a security electronics engineer who is familiar with security electronics system design and installation in Federal Correctional Service environments.

.2 The Consultant will work closely with CSC Regional and National Technical Authority.

.3 The Design Consultant shall ensure the new design layout will permit connection to the existing MCCP and CER in the basement, as well as an uninterrupted transition to the new MCCP and CER on the 2nd floor.

.2 Security System

.1 Alternatives: Investigate different methods of access control for security system (proximity card, biometrics, etc.)

.2 Maintain IP based cameras, if installed; replace analogue cameras, if installed .

.3 All technical decisions to be in accordance with Correctional Services Canada Electronic Security Systems Specifications.