APPENDIX C – FEASIBILITY STUDY

Building Condition Assessment & Facility Feasibility Study

Winnipeg

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St.Vital Library

6 Fermor Avenue

December 4, 2014

mcm architects inc.

Project No. 2196

Disclaimer

MCM Architects Inc. along with their consultants, Crosier Kilgour & Partners Ltd. (Structural) and Epp Siepman Engineering inc. (Mechanical & Electrical) prepared this report for the City of Winnipeg. The material contained within the report reflects MCM Architects Inc. and their consultants' best judgment in light of the information available to them at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. MCM Architects Inc. and their consultants accept no liability for damage, if any, suffered by any third party as a result of decisions made or actions based on this study.

The City of Winnipeg, during the course of this report, have designed and developed an elevator addition within the existing library structure, providing barrier free access to all levels of the building. All work associated with the new proposed elevator is outside of the scope of work for this report, however, MCM Architects and their consultants have, to the best of their knowlege, accommodated the new elevator into the building as an existing condition. Aspects of this report may not reflect actual onsite conditions and completed construction surrounding the new elevator.

mcm architects inc.

Crosier Kilgour & Partners Ltd.™
CONSULTING STRUCTURAL ENGINEERS

epp siepman engineering inc.
mechanical & electrical engineers

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Introduction

On April 30th, 2014, MCM Architects Inc. was retained by the City of Winnipeg to carry out a feasibility study for the existing St.Vital Library located at 6 Fermor Avenue, Winnipeg, Manitoba, in accordance with our proposal of March 31st, 2014. The intent of the study is to assess the existing buildings current condition and compliance to current building and accessibility codes and standards. Findings and recommendations will be presented in the study.

As a second part to the study a functional review of the building will be conducted to address the current and future needs of the library both in exterior and interior contexts. A preliminary proposed schematic design layout will be developed for all levels of the building as well as the surrounding exterior environment. In addition to the schematic design, a detailed scope of work and outline specifications will be generated taking both findings and recommendations from the building condition assessment and the preliminary proposed schematic design layout into account. This scope of work and outline specifications will form the base from which a Class 'C' cost estimate will be presented.

The City of Winnipeg has been proactive in its approach to expolore and ultimately provide universal access for all current and occupied buildings. It is the intent of MCM Architects and our team of consultants to provide a report that not only investigates, analyzes and defines the existing St.Vital Library building with a focus on accessibility, universal access and life safety, but to provide options and viable solutions so as to provide a safe, convienient and accessible environment for the occupant users and the surrounding community.

Approach

On June 4th, 2014, MCM Architects Inc., along with our team of consultants, visited the St.Vital Library to conduct an on-site investigation of the existing facility. The team included representatives from: MCM Architects Inc., Architects; Crosier Kilgour & Partners, Structural Engineer & Building Envelope Specialist; Epp Siepman Engineering Inc., Mechanical & Electrical Engineer.

The goal and intent of the consultant team during this on-site investigation was to familiarize ourselves and gain an understanding of the existing facility and assess the existing facilities condition through visual observation. Destructive testing of any kind was not included within the scope of work for this study.

In addition to the on-site investigation the following information was provided to the consultant team by the City of Winnipeg to aid in the preparation of this report:

- Existing Building Plans in PDF format;
- Asbestos Inventory Control Documentation;
- City of Winnipeg Asset Overview Report dated February 4, 2014;
- Program of Requirements prepared by the City of Winnipeg Library Services;
- Historical Buildings Committee recommendations dated May 2014;
- Public comments received from open house held in 2013

This report will evaluate the St.Vital Library on the following criteria:

- Assess the current building condition for Architectural, Structural, Building Envelope, Mechanical and Electrical systems;
- Assess the current building in regards to requirements established by the current Manitoba Building Code and 2010 City of Winnipeg Accessibility Design Standards;
- Assess the functional aspects of the existing library in relation to current and future needs utilizing the program of requirements document provided by the City of Winnipeg.

Working closely with MCM Architects Inc. all consultants have provided documentation relative to their specific field of expertise and these documents have been included within this report and have contributed to the functional assessment proposed for the future of the Library.

Historical Building Overview

The St.Vital Library was originally designed by Architect George A. Stewart and officially opened to the public June 9th, 1963. The building was designed in the modernist era, which, saw a move away from the structurally heavy buildings of the past towards lighter construction practices, utilizing steel framing and reinforced concrete, leanding to an increased area of glazing within the exterior walls.

Documentation submitted to MCM Architects Inc. identified that on May 5th, 2014, Council favorably approved the Historical Buildings Committee's recommendation that St.Vital Library, 6 Fermor Avenue be placed on the Buildings Conservation List as a Grade III structure with the following character defining elements:

Exterior Historical Elements:

- Key-Shaped Massing, featuring two adjoining, double height circular sections on the East, and a lower, rectangular block to the West with a stepped back front facade, and flat roofs throughout.
- Cladding Materials including dark brown brick throughout, contrasted by vertical metal reveals in regular intervals, and matching metal fascia in an undulating pattern.
- Large rectangular windows throughout, many with slanted heads to mimic the fascia, in singles or stacked in pairs, with simple mullions and spandrel panels.
- Main entrance centrally located.

Interior Historical Elements:

- The open plan.
- The exposed glulam beams throughout, in intricate radiating or grid patterns, with plank wood ceilings.
- The circular sections featuring multiple mezzanines and stairs with original wood and metal handrails / guardrails, ocular skylights, and pendant light fixtures.
- Details including some original wooden book stacks, wood panelling, etc.

There is always a struggle between what is considered historical and what is required to ensure the safety for all user groups. Sensitivity to the existing identified conditions will play a tremendous factor in any future renovations that may be proposed. Discussions with Heritage Winnipeg are recommended for all future phases.

Manitoba Building Code Review

*Based on the 2010 National Building Code of Canada complete with 2011 Manitoba Amendments

MBC - Section 3.1 - General

a. Major Occupancy Classification (3.1.2): Assembly, Division 2
b. Other intended Occupancy Group(s): N/A
c. Building Area(s): 625 sq.m.
   - Main Floor: 625 sq.m.
   - Basement Floor: 625 sq.m.
   - South & East Mezzanine: 163 sq.m.
   - North Mezzanine: 28 sq.m.
d. Building Height (Number of Storeys): One
e. Facing Number of Streets: One
f. Firewall(s) (3.1.10) Rating and Grid Location: N/A
g. High Building (3.2.6): N/A
h. Alternative Solution(s): N/A
i. Occupant Load(s) (3.1.17): 275

Main Floor:
- Office = 1
- Staff Room = 3
- Circulation Area = 127 (3.7 sq.m. per occupant)

Basement Floor:
- Program Room = 90 (posted)
- Office (x2) = 2

Mezzanine over entrance = 8 (3.7 sq.m. per occupant)
Mezzanine = 44 (3.7 sq.m per occupant)

MBC - Section 3.2 – Building Fire Safety

3.2.2 – Building Size and Construction Relative to Occupancy

a. Construction Article(s): 3.2.2.25. Group A, Divison 2, up to 2 storeys
b. Construction: Non-Combustible or Combustible, singly or in combination
c. Floor Assembly above basement (3.2.1.4): Fire Separation, No Rating
d. Crawlspace:Yes
e. Mezzanine Assemblies: Fire Separation, No Rating
f. Roof Assemblies: Heavy Timber Construction (in compliance with 3.1.4.7)
g. Load bearing beams & columns: No Fire Resistance Rating Required
h. Basement: Required to be subdivided into fire compartments not more than 600 sq.m. to comply with Article 3.2.1.5

Manitoba Building Code Review

3.2.3 – Spatial Separation

North Wall

a.	Limiting Distance (LD calculated) =	9.0m
b.	Exposing Building Face (EBF) =	234 sq.m (3:1 to 10:1)
c.	Unprotected Openings (actual) =	70 sq.m. = 30%
d.	FRR =	45 min
	Construction:	Combustible / Non-combustible
	Cladding:	Non-combustible

East Wall

a.	Limiting Distance (LD calculated) =	7.0m (4.9m to property line)
b.	Exposing Building Face (EBF) =	122 sq.m (3:1 to 10:1)
c.	Unprotected Openings (actual) =	33 sq.m = 27%
d.	FRR =	45 min
	Construction:	Combustible / Non-combustible
	Cladding:	Non-combustible

South Wall

a.	Limiting Distance (LD calculated) =	6.0m (3.8m to centre laneway)
b.	Exposing Building Face (EBF) =	234 sq.m (3:1 to 10:1)
c.	Unprotected Openings (actual) =	42 sq.m = 17.9%
d.	FRR =	45 min
	Construction:	Combustible / Non-combustible
	Cladding:	Non-combustible

West Wall

a.	Limiting Distance (LD calculated) =	2.5m
b.	Exposing Building Face (EBF) =	122 sq.m (3:1 to 10:1)
c.	Unprotected Openings (allowed) =	10 sq.m = 8.2%
d.	FRR =	45 min
	Construction:	Combustible / Non-combustible
	Cladding:	Non-combustible

3.2.8 – Mezzanines and Openings through Floor Assemblies

a.	Open Mezzanine (max. 40%):	Yes (currently calculated @ 36%)
b.	Enclosed Mezzanine (max. 10%):	N/A
c.	Interconnected Floor Space (3.2.8.2):	N/A

Manitoba Building Code Review

MBC - Section 3.3 – Safety within Floor Areas

a.	Suite Separation (3.3.1.1):	N/A
b.	Major Occupancy Separation (Table 3.1.3.1):	N/A
c.	Public Corridor (3.3.1.4):	N/A
d.	Dead-end Corridor (3.3.2.9):	N/A
e.	Egress Doorways (3.3.1.5):	Mainf floor: 2 required (3 provided) Basement: 2 required (2 provided)
f.	Guards:	Portions of Guard rail not compliant
g.	Janitors Room (3.3.1.21):	Existing is not fire rated

MBC - Section 3.4 – Exits

a.	Minimum 2 exits required (3.4.2.1):	2 required (3 provided)
b.	Mezzanine exits / egress stairs (3.4.2.2):	non-compliance (over entrance)
c.	Distance between exits (3.4.2.3):	complies
d.	Location of exits (3.4.2.5):	Less than 30m as required
e.	Exit (3.4.4.1):	1 hour separation required. (Existing are non compliant)

f. Exit capacity (3.4.3.2) Stair:

South-West Stair =	1038mm = 133
East Exterior Stair =	914mm = 114
West Mezzanine Stair =	914mm = 114
East Mezzanine Stair =	1220mm = 152
West Basement Stair =	914mm = 114
East Basement Stair =	1220mm = 152

g. Exit capacity (3.4.3.2) door:

West exit door =	914mm = 149
Main entry door =	914mm = 149
East exit door =	685mm = 112
East Basement exit door =	914mm = 149
West Basement exit door =	914mm = 149

MBC - Section 3.5 – Vertical Transporation

a. Vertical service space for dumbwaiters (3.5.3.2): Assumed to be in compliance

Manitoba Building Code Review

MBC - Section 3.7 – Health Requirements

a. Occupant Load: 275 persons (138 male + 138 female)

b. Water Closets:

Female:	1 provided	6 required
Male:	1 provided	3 required
Unisex:	1 provided	
Staff:	1 provided	

c. Lavatories:

Female:	1 provided	3 required
Male:	1 provided	2 required
Unisex:	1 provided	
Staff:	1 provided	

MBC - Section 3.8 – Barrier-Free Design

a. Barrier-Free protection (3.3.1.7): No elevator provided

b. Barrier-Free path of travel through building (3.8.2.1): Yes

c. Barrier-Free access to other floors (3.8.2.1): No

d. Barrier-Free washrooms (3.8.2.3): Provided, however, does not comply

e. Barrier-Free doorways (3.8.3.3): Door operator provided at main entry

Building Condition Assessment

The existing buildings condition was reviewed by the entire consultant team and the findings are presented in this report as follows:

Architectural:

- Walls
- Flooring
- Ceiling
- Interior Doors & Glazing
- Millwork
- Manitoba Building Code Concerns

Building Envelope:

- Building Envelope
- Exterior Glazing
- Skylights
- Exterior Finishes
- Roofing System

Structural:

- Building Foundation

Mechanical & Electrical:

- HVAC Systems
- Plumbing Systems
- Power & Data Systems
- Lighting Systems
- Life Safety Systems

The Architectural building condition assessment has been broken down on a room-by-room basis presenting findings in regards to elements noted above on each page. Reference numbering have been provided at the top of each page. Corresponding reference drawings developed by MCM Architects Inc. have been provided at the end of the Architectural section. Reference room numbers are intended for use within this study and do not reflect current room numbers found within the existing St.Vital Library.

Architectural

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Main Entry Vestibule

Main Floor (M00)

Walls:

- Painted gypsum wall board on upper half of wall. Condition appears good with visible signs of wearing typical of daily public use. Patching and new paint finish recommended.
- Plastic laminate panelling on lower half of wall. Condition appears good, however, major damage to material to the right of the exterior door. Replacement recommended.

Flooring:

- Vinyl composite tile and rubber base. Condition appears fair with visible signs of wear and tear. Minor damage visible in select areas. Replacement recommended with product more suitable to a vestibule / entrance area subject to seasonal conditions.

Ceiling:

- Natural finish solid wood slats. Condition appears good. No action recommended.

Doors:

- Exterior entry door and frame are aluminum construction. Condition appears fair, however, the current door construction would not compare to the energy efficient products utilized today. Replacement recommended.
- Interior door and frame is painted wood construction. Condition appears poor with visible damage typical of daily public use. Replacement recommended.

Millwork:

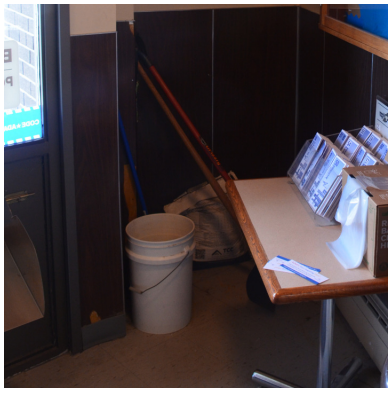
- Wall mounted message boards complete with glazed access panels are located on the upper East wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- The exterior door forms part of the buildings exit system and is therefore required to have door release (panic) hardware. Installation of code compliant door release hardware required.
- The wood slat ceiling finish is a combustible product. Combustible material with a flame spread rating greater than 25 is not permitted within an exit. Replacement required.

Combustible wood ceiling finish

Damage to floor tile



Damage to laminate material

Central Library Space

Main Floor (M01)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of wearing and minor damage typical of daily public use. Patching and new paint finish recommended.
- Wood panelling installed along South wall adjacent to reception desk. Condition appears good. Small holes visible on surface attributed to daily use. No action recommended.
- FRP panelling on lower half of East wall behind coat hooks. Condition appears good. No action recommended.

Flooring:

- Roll carpet and rubber base. Condition appears to be poor with visible signs of heavy wearing. Replacement recommended.
- Sheet vinyl at front of reception desk leading from main entry vestibule. Condition appears fair with visible signs of wearing. Transition edging between sheet vinyl and carpet held in place with tape. Replacement recommended.

Ceiling:

- Stained wood decking and glulam beam structure. Condition appears good with visible signs of water staining at central skylight and various perimeter locations. Minor repairs recommended at skylight location along with investigation into cause of water infiltration.
- Painted stucco finish on underside of Mezzanine floor. Condition appears good. New paint finish recommended.

Doors:

- N/A

Millwork:

- Reception desk appears to be in poor condition with visible signs of heavy use and wear on counter surface. Replacement recommended.

Manitoba Building Code Concerns:

- Reception desk as designed does not comply with the current barrier free requirements. Replacement recommended.

Damage to GWB at base of wall

Wear on reception counter

Tape securing threshold at carpet

West Library Space

Main Floor (M02)

Walls:

- Painted gypsum wallboard. Overall the condition appears good with visible signs of wearing and minor damage typical of daily public use. Additional concerns visible at various locations throughout the space included: un-patched “plugs”, which are assumed to be due to previous material testing; “Stud shadowing” or excessive dust accumulation at each exterior wall stud locations along North wall, typically an indication of a cold strike through the wall construction; signs of water staining at various ceiling beam structure penetrations into the exterior wall construction; peeling of paint finish off wood trim along South wall at high level; damage on the underside of gypsum board at East wall top of column; and cracking of finish material predominantly around window locations. Patching and new paint finish recommended along with investigation into possible cause of water staining and “stud shadowing”.

Flooring:

- Roll carpet and rubber base. Condition appears to be poor with visible signs of heavy wearing and various patching throughout. Replacement recommended.

Ceiling:

- Stained wood decking and glulam beam structure. Condition appears good with visible signs of water staining at skylights and various perimeter locations. Minor repairs recommended at skylight location along with investigation into cause of water staining.

Doors & Borrowed Lights:

- Painted hollow metal and wood frame exit door at West wall. Condition appears fair with minor damage to frame at low level. Door does not appear to be insulated. Replacement recommended.
- Painted wood frames complete with glazing and infill panels surrounding magazine area. Condition appears good with visible signs of wearing typical of daily public use. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- The exterior emergency exit door release (panic) hardware is an outdated model and does not meet the requirements of the current building code. Replacement required.

Carpet Patching

Damage to GWB bulkhead and un-patched plugs

Stud shadowing along north wall

East Library Space

Main Floor (M03)

Walls:

- Painted gypsum wallboard. Overall the condition appears good with visible signs of wearing and minor damage typical of daily public use. Additional concerns visible at various locations throughout the space include signs of water damage at underside of bulkhead of North wall above entrance into the space. There is visible signs of previous patching. This location appears to be in alignment with signs of water damage from mezzanine level above. Patching and new paint finish recommended along with investigation into possible cause of water staining.

Flooring:

- Roll carpet and rubber base. Condition appears to be poor with visible signs of heavy wearing and staining in various locations. Carpet does not extend below wall radiators tight to window assemblies. Replacement recommended.

Ceiling:

- Painted stucco finish on underside of Mezzanine floor structure. Overall condition appears good with the following concerns: Excessive dirt accumulation in area adjacent to mechanical wall grille; minor damage assumed to be the result of installation of new exit signage; cracking at various perimeter locations; and staining assumed to be the result of prevous water infiltration. Minor patching, cleaning and new paint finish recommended.

Doors:

- Exterior exit door and frame on East wall is aluminum construction. Condition appears good, however, the current door construction would not compare to the energy efficient products utilized today. Replacement recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- The exterior emergency exit door does not comply with the requirements of todays building code. The door width falls below the minimum requirements for an exit and the door release (panic) hardware is an outdated model. As increasing the overall width of the exit door is a major undertaking, at minimum, replacement of door release hardware is required.

Non-code compliant exit door


Damage to stucco ceiling


Water staining at underside of mezzanine structure

Head Librarian Office

Main Floor (M04)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of wearing and minor damage typical of daily use. Patching and new paint finish recommended.

Flooring:

- Roll carpet and rubber base. Condition appears to be fair with visible signs of wearing typical of daily use. Carpeting does not extend below wall radiator tight to window assembly. Replacement recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good. No action recommended.

Doors:

- Painted hollow core wood doors and frames. Condition appears poor with heavy signs of use and damage at base of door frames. Replacement recommended.

Millwork:

- Wood shelving along North wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- N/A

Carpet does not extend to window

Wear on carpet flooring

Damage to wood door frame

Staff Room

Main Floor (M05)

Walls:

- Painted gypsum wall board. Overall condition appears good with visible signs of wearing and minor damage typical of daily use. Additional concerns visible at various locations throughout the space include: cracking and peeling of paint finish at South-East exterior wall; signs of water damage possibly due to routine floor maintenance at base of partition between exterior windows; and excessive use of silicone at base of window units. Patching and new paint finish recommended.

Flooring:

- Vinyl composite tile and rubber base. Condition appears to be poor with visible signs of heavy wearing typical of daily use. Replacement recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good. No action recommended.

Doors:

- Painted hollow core wood door and frame. Condition appears poor with heavy signs of use and damage along frame. Replacement recommended.

Millwork:

- Kitchen cabinets. Condition appears poor with visible signs of wearing and damage typical of daily use. Appearance is dated. Replacement recommended.

Manitoba Building Code Concerns:

- N/A

Damage at base of wall between windows

View of kitchen cabinets

Damage to GWB wall finish

Staff Water Closet

Main Floor (M06)

Walls:

- Painted gypsum wall board on upper half of wall. Condition appears fair with large openings around electrical devices on North wall. Patch openings and new paint finish recommended.
- Ceramic tile on lower half of wall. Condition appears good, however, appearance is dated. Replacement recommended.

Flooring:

- Ceramic tile and coved tile base. Condition appears fair with build up of dirt within grout lines. Appearance is dated. Replacement with new slip resistant floor tile recommended.

Ceiling:

- Painted gypsum wall board. Condition appears good. Large opening within ceiling for electrical conduit. Patch opening and new paint finish recommended.
- Painted exposed ductwork set below gypsum ceiling reduces overall headroom clearance. Relocation of ductwork into ceiling plenum recommended, however, it may be cost prohibitive. At minimum new paint finish recommended.

Doors:

- Painted hollow core wood door and frame complete with transfer air grille at low level. Condition appears poor with heavy signs of use and damage along frame. Replacement recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Exposed electrical junction boxes along North wall potentially pose a safety hazard due to the wet nature of the room. Relocation and / or modification to existing electrical devices recommended.

Dated ceramic tile wall and floor finish

Ceiling mounted ductwork

Exposed electrical devices on north wall

Staff Work Room

Main Floor (M07)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of wearing and minor damage typical of daily use. Exterior wall on right side of dumbwaiter showing signs of water staining. Patching and new paint finish recommended along with investigation into possible cause of water staining.

Flooring:

- Vinyl composite tile and rubber base. Condition appears fair with visible signs of wearing typical of daily use. Minor damage, which appears to be caused by removal of previously fixed item. Replacement recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good. No action recommended.
- Painted stucco finish at underside of mezzanine level. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and frame from reception area. Condition appears poor with heavy signs of use and damage. Replacement recommended.
- Painted double action hollow core wood double doors adjacent to staff entrance. Doors have large transfer air grilles. Condition appears good, however, adjustment recommended to ensure doors open and close with greater ease.

Millwork / Dumbwaiter:

- Painted wood shelving along North wall. Condition appears good. No action recommended.
- Work surface and storage along West wall. Condition appears fair with visible signs of daily use. Replacement recommended.
- Dumbwaiter operation has been noted by staff to be sporatic. Condition of painted wood trim around opening is in fair condition. Recommend removal of dumbwaiter due to proposed new elevator.

Manitoba Building Code Concerns:

- Large electrical panel located adjacent to sink. Potential hazard due to proximity to wet area. Recommend relocating sink area to far end of counter.

Damage to floor tile

Large electrical panel in close proximity to sink fixture

View of dumbwaiter

Service / Loading Entrance

Main Floor (M08)

Walls:

- Painted gypsum wall board. Condition appears poor with visible signs of heavy wearing and damage assumed to be caused by moisture visible at base adjacent to exterior door and frame. Opening around duct penetration is unfinished. Patching and new paint finish at a minimum is recommended. Options for upgrading wall surfacing to a more durable material should be explored.

Flooring:

- Vinyl composite tile and rubber base. Condition appears fair with visible signs of heavy wearing typical of daily use. Replacement recommended with product more suitable to a service entrance vestibule.

Ceiling:

- Painted stucco / plaster. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and frame from Staff Workroom area. Condition appears poor. Replacement recommended.
- Exterior exit door and frame is painted hollow metal. Unable to determine if door is insulated. Door release hardware has been installed. Replacement with new insulated hollow metal door and frame recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Cover plate should be provided on electrical junction box as internal wiring has been left exposed.
- Ceiling mounted air conditioning unit reduces headroom clearance height below minimum requirements for exit facilities identified at 80" clear. Recommend investigating alternate options for locating air conditioner.
- Space appears to be used for storage of items. As this exit is identified as being an exit for the building removal of all storage materials is required so as to not interfere with exiting through this space.

Damage at base of wall adjacent to exterior door

Overhead air-condition unit reduces headroom clearance

Exposed electrical box

Public Water Closet

Main Floor (M09)

Walls:

- Painted gypsum wall board on upper half of wall. Condition appears good. Patching and new paint finish recommended.
- Ceramic tile on lower portion of wall. Condition appears good, however, appearance is dated. Replacement recommended.

Flooring:

- Ceramic tile and coved tile base. Condition appears fair with build up of dirt within grout lines. Appearance is dated. Replacement with new slip resistant floor tile recommended.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and hollow metal frame. Condition appears good. Recommend replacment with solid core commercial grade door.

Millwork:

- Plastic laminate counter top. Condition appears good, however, appearance is dated. Caulking between counter top and ceramic wall tile appears to be in fair condition. Replacement recommended.

Manitoba Building Code Concerns:

- Door hardware does not comply with current barrier free code requirements. Replacement required.
- Lavatory drain piping below counter is exposed. Piping in barrier free locations should be off-set to provide required clearances and covered to prevent potential burn hazard. Recommend modifications to offset drain piping.
- Grab bars around toilet have been provided. Location and orientation do not comply with current barrier free code requirements. Replacement recommended.

View of public washroom

Non-code compliant grab bars

Non-barrier free door hardware

Service Space (off Public Water Closet)

Main Floor (M10)

Walls:

- Painted gypsum wall board. Condition appears fair with visible signs of damage. Patching and new paint finish recommended.

Flooring:

- Vinyl composite tile and rubber base. Condition appears poor with visible signs of heavy use and damage in areas. Replacement recommended with product more suitable to a janitor / service area.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and hollow metal frame complete with transfer air grille at low level. Condition appears good. New paint finish recommended.

Millwork:

- Painted wood shelving. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- N/A

Floor tile in poor condition

View of GWB ceiling finish

Janitor Room

Main Floor (M11)

Walls:

- Painted gypsum wall board. Condition appears good visible signs of wearing typical of daily use. Patching and new paint finish recommended.

Flooring:

- Sheet vinyl and rubber base. Condition appears good. No action recommended.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and hollow metal frame complete with transfer air grilles at high and low levels. Condition appears good. New paint finish recommended.

Millwork:

- Painted wood shelving. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- Janitor room used for storage of chemicals is required to have a fire separation with a fire resistance rating around it. It is assumed that the existing wall construction with gypsum and stud framing meets the fire rating, however, the door and frame are not fire rated. Replacment of door and frame with fire rated product required.

Non-fire rated door c/w grilles

View of janitor room at high level

View of janitor room at low level

Central Library Space

South Mezzanine (ME01)

Walls:

- Painted gypsum wall board. Overall condition appears good with visible signs of wearing and minor damage typical of daily use. Vertical cracking occurring at most outside angle corners, which is potentially caused by insufficient support behind gypsum board at corneer locations. Visible signs of water staining on exterior walls under wood beams. Recommend patching and additional support provided at exterior corners complete with new paint finish along with investigation into possible cause of water staining.

Flooring:

- Roll carpet and rubber base. Condition appears fair with visible signs of heavy wearing typical of daily public use. Gaps within flooring noticeable at exterior window locations. Replacement recommended.
- Floor grille along South wall is set above flooring finish and could potentially pose a safety hazard. Replacement recommended.

Ceiling:

- Stained wood decking and glulam beam structure. Condition appears good with visible signs of water staining at central skylight and various perimeter locations. Wood decking appears to be deflecting up and separating from top of glulam beam at decorative wood column locations. Minor repairs recommended at skylight location and investigation into cause of water staining as well as removal of decorative wood column to release pressure on roof decking above.

Doors:

- N/A

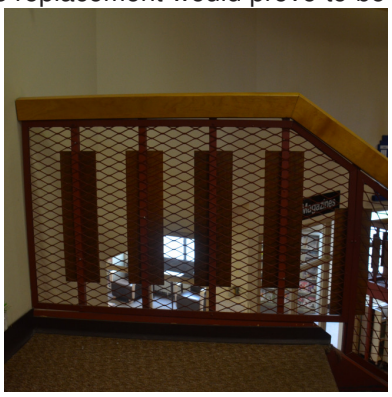
Millwork / Dumbwaiter:

- Dumbwaiter operation has been noted by staff to be sporatic. Condition of painted wood trim around opening is in fair condition. Recommend removal of dumbwaiter due to proposed new elevator.

Manitoba Building Code Concerns:

- Handrail profiles and height of existing guardrail at North-West stairs do not comply with requirements of the current building code. Replacement required.
- Height of stair risers range from 7" to 7 ½". Code requires all risers to be equal. Recommend further discussion with local AHJ as replacement would prove to be cost prohibitive.

Roof decking separated from beam



North-west guardrail too low

Water staining around skylight

Central Library Space

North Mezzanine (ME02)

Walls:

- Painted gypsum wall board. Overall condition appears good with visible signs of wearing and minor damage typical of daily use. Vertical cracking occurring at most outside angle corners, which is potentially caused by insufficient support behind gypsum board at corneer locations. Visible signs of water staining on exterior walls under wood beams. Recommend patching and additional support provided at exterior corners complete with new paint finish along with investigation into possible cause of water staining.

Flooring:

- Roll carpet and rubber base. Condition appears fair with visible signs of heavy wearing typical of daily public use. Noticeable ridge in the floor construction adjacent to the stairs is a potential safety hazard. Floor construction “squeaks” which is an indication of movement within the structure due to loading. Investigation and modifications to existing floor structure and replacement of floor finish recommended.

Ceiling:

- Refer to Central Library Space for noting.

Doors / Millwork:

- N/A

Manitoba Building Code Concerns:

- Handrail profiles do not comply with requirements of the current building code. Replacement required.
- Height of stair risers range from 7" to 7 ½”. Code requires all risers to be equal. Recommend further discussion with local AHJ as replacement would prove to be cost prohibitive.
- Top stair tread leading to mezzanine is angled reducing the overall depth of tread below the minimum dimension permitted by code. Recommend further discussion with local AHJ as replacement would prove to be cost prohibitive.

Damage and cracking in GWB

View of mezzanine

Angled top step at mezzanine level

East Library Space

Mezzanine (ME03)

Walls:

- Painted gypsum wall board. Overall condition appears good with visible signs of wearing and minor damage typical of daily use. Additional concerns visible are vertical cracking occurring at most outside angle corners, which is assumed to be caused by insufficient support behind gypsum board; Visible signs of water staining on exterior walls at connection to roof wood beams; damage to gypsum wall board bulkhead at connection to Central Library Space, finish is “bubbling”. Staff noted that this area had been renovated in the past to deal with water issues. Recommend patching and additional support provided at exterior corners complete with new paint finish along with investigation into possible cause of water staining.

Flooring:

- Roll carpet and rubber base. Condition appears fair with visible signs of heavy wearing typical of daily public use. Gaps within flooring noticeable at exterior window locations. Replacement recommended.

Ceiling:

- Stained wood decking and glulam beam structure. Condition appears good with visible signs of water staining at central skylight and various perimeter locations. Minor repairs recommended at skylight location and investigation into cause of water staining as well as removal of decorative wood column to release pressure on roof decking above.

Doors:

- N/A

Millwork:

- N/A

Manitoba Building Code Concerns:

- Height of existing guardrail at North stairs do not comply with requirements of the current building code. Replacement recommended.

Water staining on roof structure

Cracking in GWB along exterior wall

Damage at base of column due to water

Central Common Area

Basement (B01)

Walls:

- Painted Gypsum wall board. Condition appears good with visible signs of wearing typical of daily use. Patch and new paint finish recommended.
- Painted concrete block around both East & West stair locations. Condition appears good. New paint finish recommended.

Flooring:

- Carpet tile and rubber base Condition appears good with visible signs of typical daily use. No action recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears fair with visible damage and dirt assumed to be from use accessing ceiling plenum above. Replacement of damaged and dirty panels recommended.

Doors:

- N/A

Millwork:

- Coat rack and wood shelf along South wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- N/A

East view of common room

West view of common room

West Central Stair

Basement (B02)

Walls:

- Painted concrete block. Condition appears good with visible signs of wearing typical of daily use. New paint finish recommended.
- Wood panelling above main floor level. Condition appears good. No action recommended.

Flooring:

- Roll carpet at intermediate landing and basement floor. Condition appears good. No action recommended.
- Rubber treads on all stairs. Condition appears good. No action recommended.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and frame at basement floor level complete with translucent wired glass. Condition appears good. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Contrasting nosing demarcating edge of all stair treads and landings are required. Recommend providing colour contrasting strips at all stair treads and landing levels.
- Handrail profiles do not comply with requirements of the current building code. Handrails are required to be continuous and installed on both side of stairs. Replacement and additional handrail recommended.
- Door and frame is required to be fire rated as it is providing the separation between main and basement floor levels. Replacement recommended with code compliant door release hardware as the doors serve as part of the basement floor level access to exit.

Carpet on intermediate landing

Non-fire rated door into stairwell at basement level

Non-code compliant handrails

East Central Stair

Basement (B03)

Walls:

- Painted concrete block. Condition appears good with visible signs of wearing typical of daily use. New paint finish recommended.
- Painted concrete / plaster finish. Condition appears good. New paint finish recommended.
- Painted gypsum wall board above main floor level. Condition appears good. New paint finish recommended.

Flooring:

- Carpet at intermediate landing and basement floor. Condition appears good. No action recommended.
- Rubber treads on all stairs. Condition appears good. No action recommended.

Ceiling:

- Painted plaster finish. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood double doors and frame at basement floor level complete with translucent wired glass. Condition appears good. New paint finish recommended

Millwork:

- N/A

Manitoba Building Code Concerns:

- Contrasting nosing demarcating edge of all stair treads and landings are required. Recommend providing colour contrasting strips at all stair treads and landing levels.
- Handrail profiles do not comply with requirements of the current building code. Handrails are required to be continuous and installed on both side of stairs. Replacement and additional handrail recommended.
- Door and frame is required to be fire rated as it is providing the separation between main and basement floor levels. Replacement recommended with code compliant door release hardware as the doors serve as part of the basement floor level access to exit.

View from landing up to main floor

Non-fire rated doors into stairwell at basement level

View from landing down to basement floor

Boiler Room & Storage

Basement (B04)

Walls:

- Unpainted concrete block. Condition appears good. No action recommended.
- Unpainted cast-in-place concrete. Condition appears good. No action recommended.

Flooring:

- Unpainted cast-in-place concrete. Condition appears good. No action recommended.

Ceiling:

- Unpainted cast-in-place concrete. Condition appears good. No action recommended.
- Unpainted gypsum wallboard assumed to be providing the required fire rating around the ceiling steel structure. Condition appears fair with visible damage at the South end and a large discoloured patch around the mid point extending onto the underside of the concrete ceiling within the Boiler room. Investigation into the nature of the discolouration recommended and then based on findings removal and provide new gypsum to suit.

Doors:

- Painted hollow metal door and frame at boiler room. Condition appears good. No action recommended.
- Painted hollow core wood door and frame into Storage room from basement common area. Condition appears good. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Door in Boiler room has a fire rated label, however, it has been painted over. Label should be visible and clearly identify the rating. Unable to determine if door frame is rated as no label could be found. Frame is hollow metal and appears to be solid grouted into concrete block wall construction which should be sufficient to provide the required fire rating. No action recommended.
- Boiler room is required to be separated from the remainder of space with a fire separation complete with fire resistance rating. Any and all penetrations through wall or ceiling are required to be fire stopped. Recommend firestopping all penetrations through walls and ceiling structure.

Ceiling penetration infilled with wood

Damage on underside of GWB

Unconfirmed growth on GWB and concrete structure

Electrical Room

Basement (B05)

Walls:

- Painted concrete block. Condition appears good. No action recommended.
- Painted gypsum wall board. Condition appears good. No action recommended.

Flooring:

- Unpainted cast-in-place concrete. Condition appears good. No action recommended.

Ceiling:

- Painted suspended plaster finish. Condition appears fair with visible damage around large penetrations accommodating electrical services. Patching and new paint finish recommended.

Doors:

- Painted hollow core wood door and frame complete with transfer air grille. Condition appears good. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- N/A

Damage to ceiling for electrical

Door into electrical room c/w grille

Concrete flooor, crawlspace access hatch and data rack

Work Room

Basement (B06)

Walls:

- Painted concrete block adjacent to entrance into Storage room. Condition appears good. New paint finish recommended.
- Painted gypsum wall board. Condition appears good with visible signs of wearing typical of daily use and water staining on exterior wall to the right of the dumbwaiter. Patching and new paint finish recommended along with investigation into possible causes of water infiltration.

Flooring:

- Vinyl composite tile and rubber base. Condition appears good with visible signs of wearing and minor damage of tiles in select areas. Recommend replacement of damaged tiles and refinishing of existing floor.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good. No action recommended.

Doors:

- Painted hollow core wood door and frame. Condition appears good. New paint finish recommended.

Millwork / Dumbwaiter:

- Work surface and storage along West and South walls. Condition appears fair with visible signs of wearing. Unless this room is actively being used existing millwork is still performing as intended. No action recommended.
- Painted wood shelving along North wall. Condition appears good. No action recommended.
- Dumbwaiter operation has been noted by staff to be sporatic. Condition of painted wood trim around opening is in fair condition. Recommend removal of dumbwaiter due to proposed new elevator.

Manitoba Building Code Concerns:

- N/A

Light switch positioned too high, outside of barrier free acceptable range

Damged to floor tile

Storage Room (off Work Room)

Basement (B07)

Walls:

- Painted concrete block and cast-in-place concrete. Condition appears fair with visible signs of wearing and water staining on exterior wall. Large penetration through West wall to accommodate mechanical piping into adjacent Boiler room. Patch and new paint finish recommended along with investigation into possible cause of water staining.

Flooring:

- Vinyl composite tile and rubber base. Condition appears good. No action recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears fair with visible signs of water damage in areas. Replacement of damaged ceiling tiles recommended along with investigation into possible cause of water staining.

Doors:

- Painted hollow metal door and frame. Condition appears good. New paint finish recommended.

Millwork:

- Painted wood shelving along South wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- Penetrations through West wall into adjacent Boiler room are required to be fire-stopped to maintain the fire resistance rating required around the Boiler room. Patch and firestop all penetrations into Boiler room recommended.

Water staining on acoustic ceiling

Penetrations into adjacent boiler room required to fire stopped

View of storage room

Public Water Closet – Men's

Basement (B08)

Walls:

- Painted gypsum wall board on upper half of wall. Condition appears good with visible signs of typical use. Patching and new paint finish recommended.
- Ceramic tile on lower portion of wall. Condition appears good however appearance is dated. Replacement recommended.

Flooring:

- Ceramic tile and coved tile base. Condition appears fair with build up of dirt within grout lines. Appearance is dated. Replacement with new slip resistant floor tile recommended.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and frame complete with passibe transfer air grille. Condition appears good. Recommend replacment with solid core commercial grade door.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Washroom does not comply with barrier free requirements of todays code. Recommend upgrading washroom to meet current code requirements.

View of mens watercloset

View of mens watercloset

Janitor Room (off Public Water Closet – Men's)

Basement (B09)

Walls:

- Painted gypsum wall board except exterior gypsum wall board which is unfinished. Condition appears poor with visible signs of damage, paint peeling and oversized cut-out around mechanical piping. Patching and new paint finish recommended.

Flooring:

- No flooring found within this room with visible residue from previous floor finish visible. Provide new flooring appropriate to use of this space recommended.

Ceiling:

- Painted gypsum wall board. Condition appears poor with visible signs of damage, staining and residue. Patching and new paint finish recommended.

Doors:

- Painted hollow core wood door and frame complete with passive transfer air grille. Condition appears good. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- N/A

Exterior wall GWB unfinished

No floor finish within room

Damage to GWB and ceiling

Public Water Closet – Women's

Basement (B10)

Walls:

- Painted gypsum wall board on upper half of wall. Condition appears good with visible signs of typical use. Patching and new paint finish recommended.
- Ceramic tile on lower portion of wall. Condition appears good, however, appearance is dated. Replacement recommended.

Flooring:

- Ceramic tile and coved tile base. Condition appears fair with build up of dirt within grout lines. Appearance is dated. Replacement with new slip resistant floor tile recommended.

Ceiling:

- Painted gypsum wall board. Condition appears fair with visible signs of previous patching. Patch and new paint finish recommended.

Doors:

- Painted hollow core wood door and frame. Condition appears good. Recommend replacment with solid core commercial grade door.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Washroom does not comply with barrier free requirements of todays code. Recommend upgrading washroom to meet current code requirements.

View into womens watercloset


Previous patching on ceiling


Ceramic tile floor finish

West Office

Basement (B11)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of daily use. New paint finish recommended.

Flooring:

- Carpet tile and rubber base. Condition appears good. No action recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good. No action recommended.

Doors:

- Painted hollow core wood door and frame. Condition appears good. New paint finish recommended.

Millwork:

- Painted wood shelving along South wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- N/A

View of office

View towards storage room

Storage Room (off West Office)

Basement (B12)

Walls:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Flooring:

- Vinyl asbestos tile and rubber base. Condition appears fair. Recommend removal of asbestos flooring and new flooring material provided.

Ceiling:

- Painted gypsum wall board. Condition appears good. New paint finish recommended.

Doors:

- Painted hollow core wood door and frame. Condition appears good. New paint finish recommended.

Millwork:

- Painted wood shelving along East wall. Condition appears good. No action recommended.

Manitoba Building Code Concerns:

- N/A

View of storage room

East Office

Basement (B13)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of daily use. New paint finish recommended.
- Painted concrete block. Condition appears good. New paint finish recommended.

Flooring:

- Carpet tile and rubber base. Condition appears good with visible signs of damage due to assumed removal of previous electrical floor devices. Replacement of damaged floor tiles recommended.
- Floor hatch accessing crawlspace below with open grating located in North-West corner of room.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears fair with visible signs of cracking and water staining. Replacement of damaged tiles recommended along with investigation into possible causes of water staining.

Doors:

- Painted hollow core wood door and frame complete with passive transfer air grille. Condition appears good. New paint finish recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- N/A

Water staining on acoustic ceiling

Damage to carpet finish

Crawlspace access hatch

Multi-Purpose Room

Basement (B14)

Walls:

- Painted gypsum wall board. Condition appears good with visible signs of wearing typical of public use. Patching and new paint finish recommended.

Flooring:

- Carpet tile and rubber base. Condition appears good. No action recommended.

Ceiling:

- Acoustic ceiling tile and suspension grid. Condition appears good with visible signs of damage and water staining. Replacement recommended for all damaged tiles along with investigation into possible cause of water staining.

Doors:

- Painted hollow core wood double doors and frame complete with passive transfer air grilles and wired glazing in one door. Condition appears good. Recommend replacment with solid core commercial grade doors.

Millwork:

- Painted wood ledge around perimeter of room, assumed to be used for display purposes appears to be good condition. New paint finish recommended.

Manitoba Building Code Concerns:

- Double doors swing into the room which is not permitted by code for a space containing an occupancy greater than 60. Doors are required to swing in the direction of travel. The room has a posting outside the entrance door limiting occupancy to 90. Recommend posting sign limiting occupancy within the room to less than 60.
- Code requires two means of egress from rooms having an intended occupancy greater than 60. Two access to exits have been provided, however, neither of them are code compliant. Recommend posting sign limiting occupancy within the room to less than 60 and reconstructing the exterior exit to meet the requirements of todays code.

Damage to carpet floor finish

Water staining on acoustic ceiling

Double doors accessing room

Exit Stair (off Multi-Purpose Room)

Basement (B15)

Walls:

- Unpainted cast-in-place concrete below main floor level. Condition appears fair with visible signs of water staining. No action recommended.
- Existing exterior wall masonry veneer. Condition appears good. No action recommended.
- Unfinished wood stick framing and plywood at exterior wall locations above grade. Condition appears poor. Replacement recommended. See Manitoba Building Code Concerns below.

Flooring:

- Unpainted cast-in-place concrete stairs. Condition appears good. Leading edges of stairs should have an abrasive colour contrasting warning strip. Recommend providing contrasting strip at all tread locations. See Manitoba Building Code Concerns below.

Ceiling:

- Unpainted wood stick framing and plywood. Condition appears poor. Site was visited during rain weather and water was visible rushing down face of existing masonry veneer. Metal cladding is sealed to face of existing veneer with excessive amounts of caulking. Replacement recommended. See Manitoba Building Code Concerns below.

Doors:

- Painted hollow metal door and frame at exterior grade level. Door is complete with door release hardware and closer. New paint finish recommended.
- Painted hollow core wood door and frame at basement level. Door is complete with door release hardware. Replacement with new insulated hollow metal door and frame recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Existing exit stair enclosure does not meet the Manitoba Building Code requirements of today. The enclosure is partially constructed out of combustible materials, door release hardware on basement level door is outdated, door sill at basement level is set up above the floor approximately 5" which creates a step or tripping hazard and only a partial handrail has been installed on one side of the stair. Replacement recommended with new code compliant construction.

Step up and non-compliant door release hardware on door


Concrete stairs


View looking up into exit stair

Unfinished Open Area

Basement (B16)

Walls:

- Unpainted cast-in-place concrete. Condition appears good. No action recommended.
- Unpainted cast-in-place interior concrete columns. Condition appears good. No action recommended.

Flooring:

- Unpainted cast-in-place concrete. Condition appears good with visible minor hairline cracking. No action recommended.

Ceiling:

- Unpainted cast-in-place concrete structure. Condition appears good. No action recommended.

Doors:

- Painted hollow core wood double doors and frame. Condition appears poor with visible damage and delamination of veneer occuring on South door. Replacement recommended.

Millwork:

- N/A

Manitoba Building Code Concerns:

- N/A

East view of area

West view of space

West Exit Stair

Basement (B17)

Walls:

- Painted cast-in-place concrete and concrete block at lower portion of stairwell. Condition appears fair with visible signs of damage and various cracking. Patching and new paint finish recommended.
- Painted gypsum wall board above main floor level. Condition appears good with visible signs of wearing typical of use. Patching and new paint finish recommended.

Flooring:

- Unpainted cast-in-place concrete landings and stairs. Condition appears good. No action recommended.

Ceiling:

- Painted wood deck and glulam structure. Condition appears good. New paint finish recommended.
- Roof access hatch located in North-West corner of stairwell. Increased safety hazard due to close proximity of roof access ladder to main floor landing guardrail. Height of fall has increased all the way to the basement level. Recommend providing safety cage around access ladder.

Doors:

- Painted hollow core wood door and frame complete with translucent wired fritted glass at basement level. Condition appears good. Replacement recommended. See Manitoba Building Code Concerns below.
- Painted hollow core wood door and hollow metal frame complete with translucent wired fritted glass at main floor level. Condition appears good. Replacement recommended. See Manitoba Building Code Concerns below.

Millwork:

- N/A

Manitoba Building Code Concerns:

- Existing exit stair enclosure does not meet the Manitoba Building Code requirements of today. Stair well is required to be separated from the remaining spaces of the building with a fire separation; Handrails and guardrails are not code compliant; Slip resistant flooring complete with contrasting nosings required at every tread and landing are required; doors and frames are required to be fire rated and be complete with appropriate door hardware. Recommend renovations to provide a code compliant exit stair.

Door at top of stairs accessing into west library space

Non-code compliant hand and guard rails

Access ladder for roof hatch

Exterior

Building Elevations:

- Painted cast-in-place concrete foundation walls around entire building. Condition appears fair with visible spalling and cracking in paint finish along with signs of damage. New paint finish recommended.
- Prefinished metal rain water leaders. Condition appears poor with visible signs of rust and damage. Replacement recommended.
- Metal flashing at high level around entire building. Condition appears poor with visible signs of rust at various locations. Replacement recommended.
- Metal cladding panels surrounding exit stair enclosure from Basement on East elevation sealed to existing veneer with excessive amounts of caulking.
- Painted steel hand and guardrails are in poor condition with visible signs of rust, damage and peeling of paint finish. Replacement recommended. See Manitoba Building Code Concerns below.
- Concrete stairs, ramps and landing around the building are in fair condition with minor signs of cracking and rust staining from steel hand and guardrail systems. Base of ramp at West end of the building has fallen away creating a step at the bottom of the ramp. Repair base of ramp to ensure continuous slope recommended. See Manitoba Building Code Conerns below.
- Asphalt paving around building appears to be in fair condition with visible signs of wear. Portion of paving has fallen adjacent to the gas meter. Grading still remains higher at the base of the building providing for positive drainage away. No action recommended.

Manitoba Building Code Concerns:

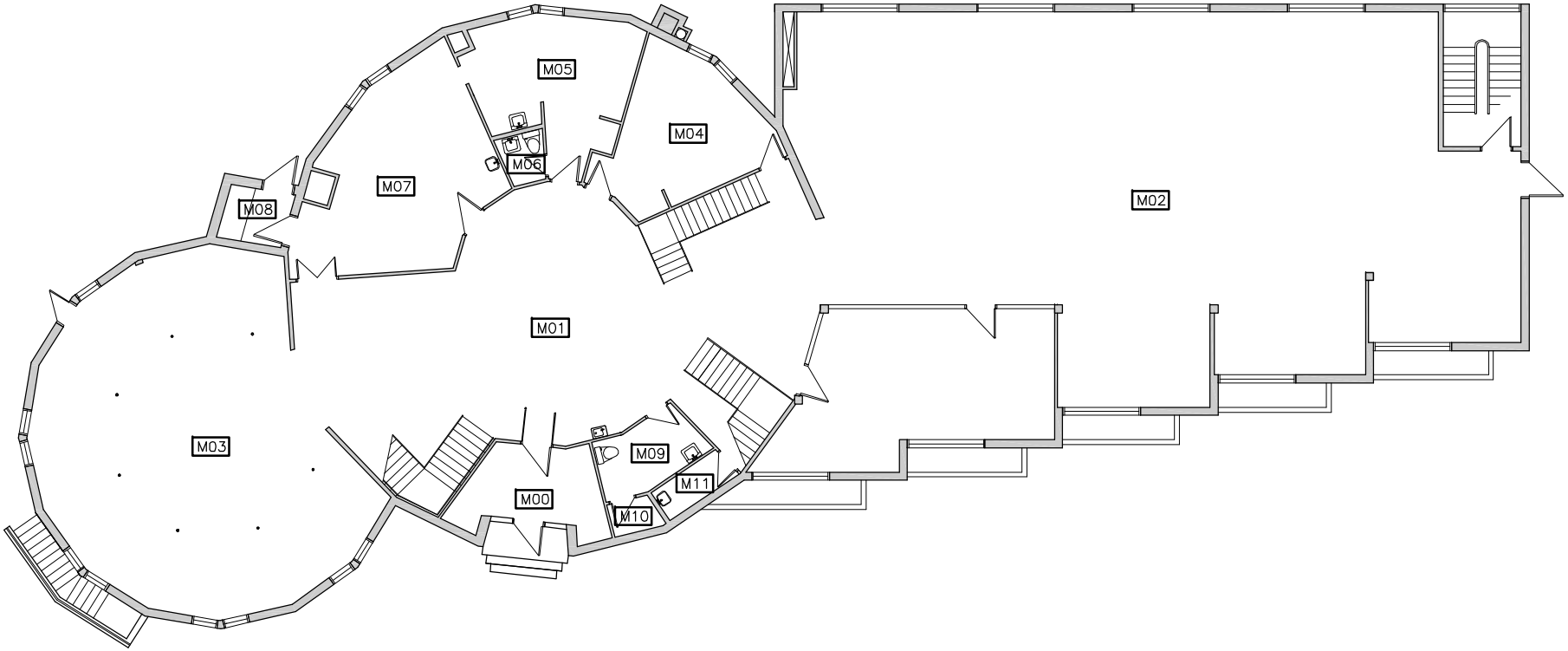
- Concrete ramp and stair construction at main entry is not code compliant. Handrails are required to extend past the last riser at both top and bottom; detectable warning surfaces are required at top and bottom landings as well as each stair tread; and ramp slope exceeds the maximum standard. Replacement recommended.
- Concrete exit stair at East exit has risers of varying heights which is not permitted by code. Existing parking fence located in close proximity which can pose a safety hazard in the case of an emergency. Replacement and relocation of parking fence recommended.
- Concrete ramp and stair construction at West exit is not code compliant. Handrails are required to extend past the last riser at both top and bottom of stairs and ramp; detectable warning surfaces are required at top and bottom landings as well as each stair tread; landing at base of ramp has fallen approximately 6” below ramp level rendering the ramp inaccessible; adequate clearance has not been provided between the door and railing system. Replacement recommended.

Paint finish peeling off concrete foundation

Rust on metal cladding

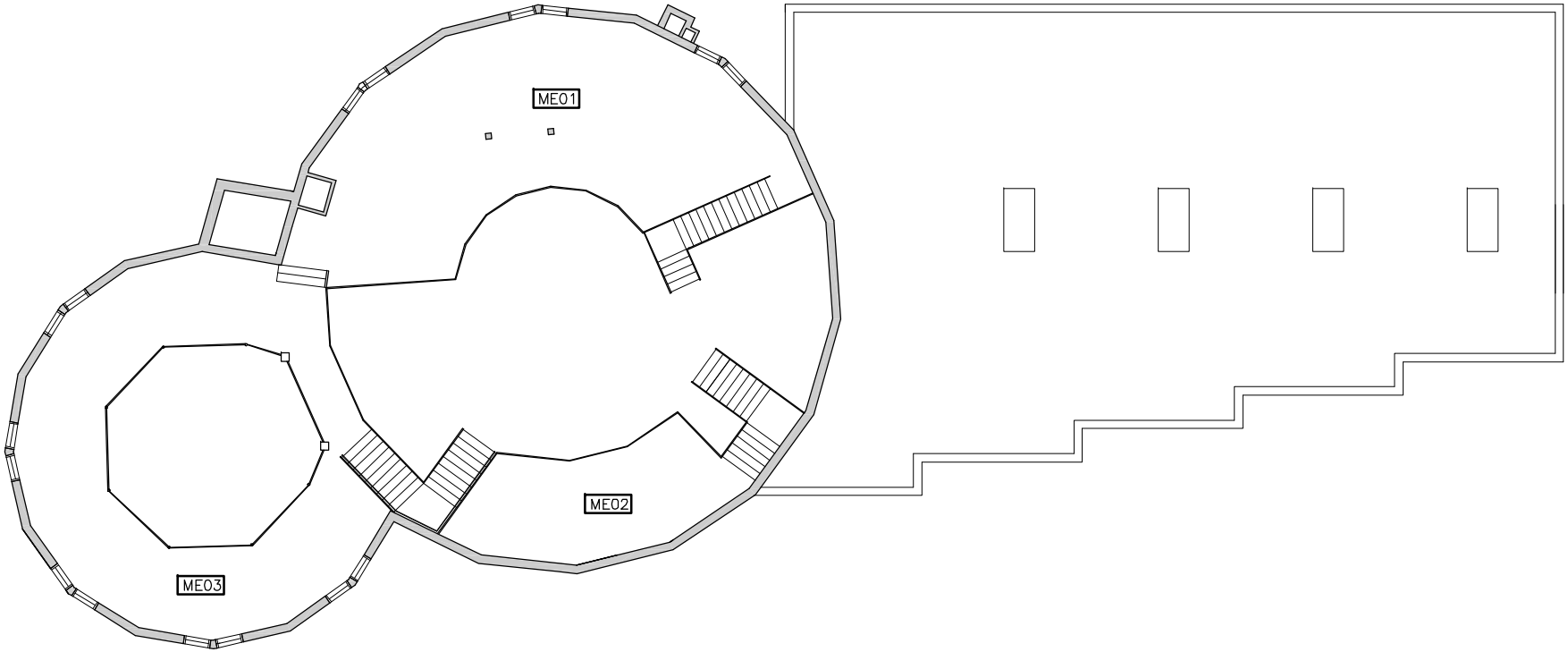
Concrete base at ramp fallen away

Reference Drawings



St.Vital Library
Main Floor Level
N.T.S.

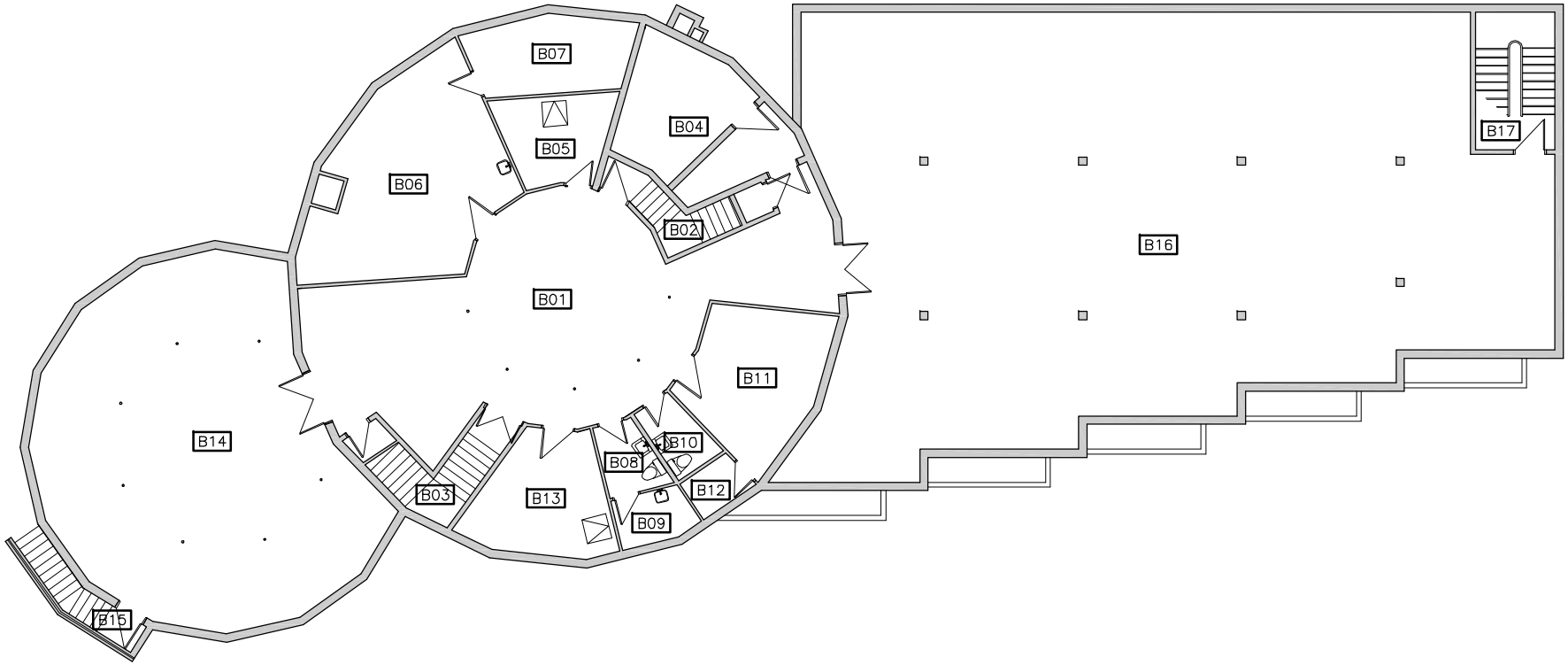
mcm architects inc.



St.Vital Library
Mezzanine Floor Level

N.T.S.

mcm architects inc.



St.Vital Library
Basement Floor Level

N.T.S.

mcm architects inc.

Building Envelope

Crosier Kilgour & Partners Ltd.™
CONSULTING STRUCTURAL ENGINEERS

Crosier Kilgour & Partners Ltd.
CONSULTING STRUCTURAL ENGINEERS

July 3, 2014 Our File No. 2014-0535

MCM Architects Ltd.
141 St. Anne's Road
Winnipeg, MB
R2M 2Z3

Attention: Mr. Jeff Machnicki

Dear Sir:

Re: St. Vital Library
Building Envelope Assessment

Further to our site review of the St. Vital Library, the following summarizes our significant observations and recommendations for consideration. Photographs of significant findings are appended for clarity.

The scope of our review consisted of a visual review only of representative areas of the building. No invasive inspection recesses were completed. The review was completed in general conformance with the Protocols for Building Condition Assessments, published by the National Research Council, Institute for Research in Construction.

Building Description

- The building was designed in 1962 and based on the original drawings provided, the typical exterior wall consists of two wythes, thus, eight inches of clay brick, 2" batt insulation with integral vapour retarder, and ¾" interior drywall finish. The exterior masonry is based on an American Bond system in which every sixth coarse is rotated 90 degrees and acts as a tie for the two wythes. Thus, there is no functional drainage cavity.

- We calculate that the existing wall system provide for a thermal resistance of approximately RSI 1.41 (R8.0).

- The roof cross-section apparently remains original to the building and consists of a built-up roof, presumably four ply felts. No core tests were completed but the drawings state the roof to consist of the hot-asphalt/felt ply overlying 2" of fiberglass, 1" of fiberboard, vapour retarder, and 3" wood deck. The thermal resistance provided is about RSI 2.3 (R13).

- The basement consists of cast-in-place concrete foundation walls with the east and west wings utilizing a slab-on-grade. The central portion utilizes, however, a structural slab and therefore has a crawlspace.

- Windows are not original to the building but consist of an aluminum store front type framing system incorporating interior glazed units. Glazing units are triple pane, incorporating a metal spacer. An aluminum spandrel box is provided, the depth of insulation, however, could not be confirmed. The windows are face sealed units and therefore rely on caulking for air and precipitation protection. Operable casement windows have been sporadically provided at the second floor level.

- We observed that the aluminum windows were set within the original wood bucks of the building.

Component Condition Summary

- In general, the exterior masonry walls were in good condition. No significant evidence of cracking or displacement was observed.

- The exterior has been provided with steel cladding panels along the parapet level. Minor corrosion and dislodgement of fasteners is occurring in several areas. Photograph 1 shows an example of the corrosion and displaced fastener along the north face of the building.

- It would be advantageous to complete localized examination of the masonry conditions under the metal cladding panels.

- The exterior caulking has failed in most areas. On-site personnel report numerous areas of water penetration under conditions of wind-driven rain. The condition of the exterior caulking provides for numerous discontinuities in the building envelope. Photograph 2 shows and example of failed caulking at a window rough opening. Thus, water penetration is not surprising.

- The newer aluminum windows were placed within the original wood bucks. Photograph 3 shows the sill condition from the interior where water penetration routinely occurs. Note the deterioration to the wood framing supporting the aluminum window from long-term exposure to water. Gaskets in the spandrel boxes and glazing were also observed to have been displaced.

- Evidence of water penetration is present at several glulam beam/exterior wall supports. Photograph 4 shows staining on the interior drywall, possibly from wind-driven rain.

- The basement was generally observed to be in good condition. We were advised that a section of the north wall was excavated and waterproofed to address water penetration. However, evidence of water penetration was also observed along the west wall, south end, in the stairwell, as shown in Photograph 5.

- The crawlspace was accessed which confirmed the soil to be exposed and wet. Photograph 6 shows the observed condition. The uncovered soil can be a major source of moisture and thus, condensation damage in addition to negatively affecting indoor air quality.

- There is significant evidence of water penetration through the roof assembly, particularly at the skylights. Photograph 7 shows the interior face of the glulams and the water staining. Water penetration was also observed in several roof beam areas, an example of which is shown in Photograph 8.

- The roof was therefore accessed which confirmed that the membrane was generally in poor condition. Evidence of checking in the membrane, degranulation and exposed deteriorated felts was observed throughout all three roof decks. Photograph 9 shows an example of the deteriorated membrane.

- The roof system incorporated no effective drainage profile along the west wing which leads to ponding of water.

- The skylight details were in very poor condition; thus, water penetration is not surprising. Photograph 10 shows the typical skylight/roof interface. Aluminized tape appears to have been used to affect a repair.

- All terminations were generally in poor condition. In addition, multiple patch repairs appear to have been completed to the roof, the frequency of which is estimated to increase due to the poor condition of the roof.

Summary of Recommendations

Based on the site observations, the following summarizes our recommendations for the building. We have based the recommendations on immediate requirements, short-term, and long-term considerations.

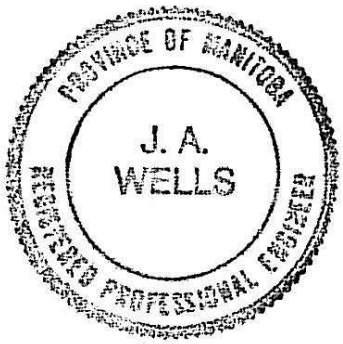
1. Immediate Requirements
    - Re-anchor steel cladding panels exhibiting loose or missing fasteners.
    - Repair areas of damaged caulking to reduce water penetration into the wall system.
    - Address skylight/roof interface details to reduce water penetration through roof.

2. Short-Term Recommendations (one-two years)
    - Replace roof system with current state-of-the practice R28 system, incorporating integral air/vapour barrier assembly and sloped insulation for drainage. Note that modifications to the parapets will be required to accommodate the thicker insulation.
    - Replace skylights or re-furbish to facilitate durable interface waterproofing detail.
    - Rehabilitate crawlspace via re-grading, continuous polyethylene ground cover, French drain system and sump-pit.

3. Long-Term Considerations
    - Replace existing window system with commercial grade aluminum curtain wall frame system, incorporating triple pane glazing units, and dual low emissivity coatings.
    - Consider upgrading exterior wall system including interior insulation via spray-foam. Removal and replacement of corroding metal panels recommended. Also, an allowance for masonry repairs will be required. Note that multiple options are available, including over-cladding, each with advantages and disadvantages, thus, further discussions with the design team are warranted in order to establish appropriate options.

We trust the above provides the information you require. If however, you have any questions or require clarification, please call.

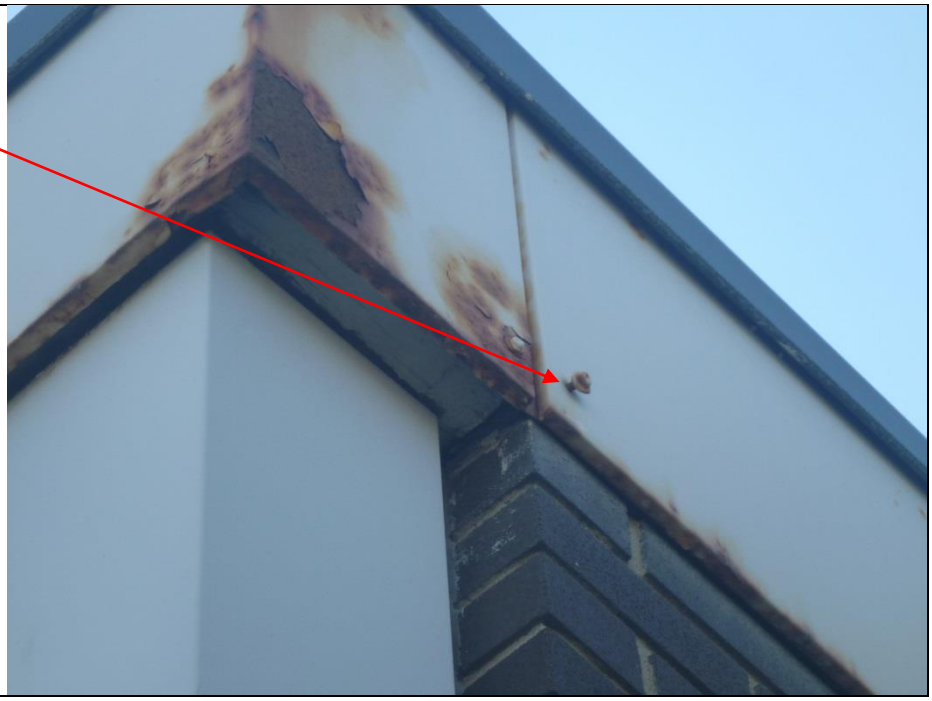
Yours truly,



John A. Wells, P. Eng.

/jw

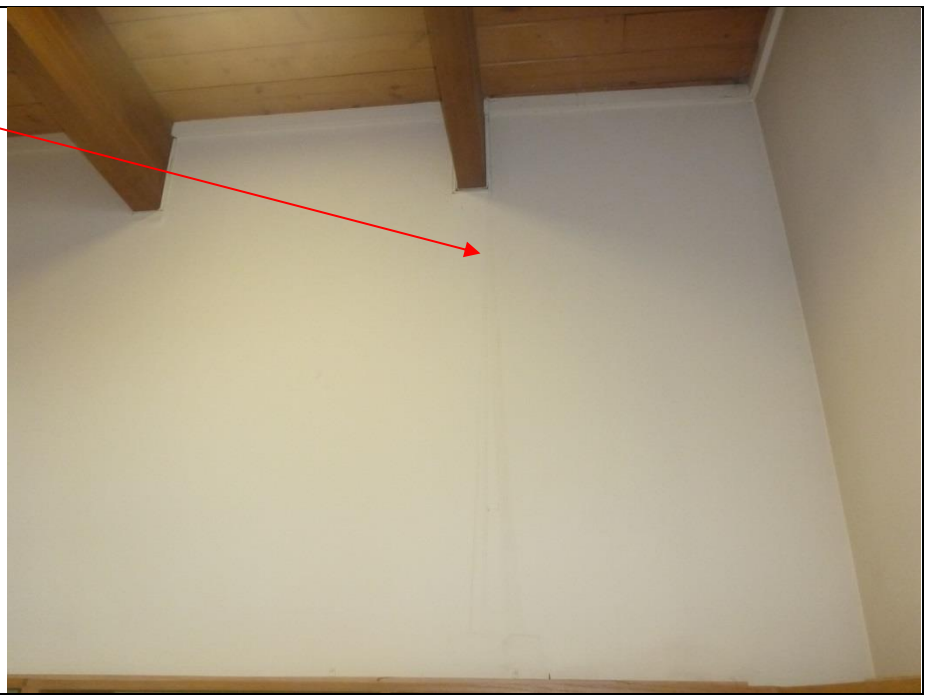
Photograph #1:
Minor corrosion on metal fascia panel. Note also displaced screw fastener.



Photograph #2:
Failed caulking at window jamb.

Photograph #3:
Deteriorated sill and evidence of dried water stains. Note also displaced gasket.

Photograph #4:
Water staining from glulam projection at exterior wall.



Photograph #5: Water penetration in rear stairwell of foundation wall (south-west).	
Photograph #6: Crawlspace under central portion of library was confirmed to be uncovered and damp.	

Photograph #7: Water staining along framing below skylight.	
Photograph #8: Water staining in glulam beam supporting east roof.	

Photograph #9: Example of exposed, deteriorated felts.	
Photograph #10: Poorly detailed skylight/roof interface.	

Structural

Crosier Kilgour & Partners Ltd.™
CONSULTING STRUCTURAL ENGINEERS

LIBRARY FACILITIES RENOVATION PROJECT

St Vital Library, 6 Fermor Avenue

Structural Review

INTRODUCTION

A walkthrough structural assessment of the above mentioned premises was completed on June 4th 2014. The purpose of the inspection was to develop and overall sense of the structural condition of the facility and identify within the limitations of a walkthrough inspection any significant issues of a structural concern.

To supplement our visual inspection a cursory review of the original building drawings dated August 1962 was also completed.

STRUCTURAL SYSTEM

The building is primarily a one story structure with a full concrete basement and a partial mezzanine.

The general roof is constructed of 3" tongue and groove wood decking on a grillage of glu-laminated wood beams and steel columns. The roof over the central circular hall is of similar wood construction however uses radially spaced beams and a compression ring at the top and tension ring at the perimeter.

The mezzanine which extends through the two adjoining circular sections of the building is constructed of 4 ½" concrete slabs supported on a grillage of wide flange steel beams and steel columns. The existing mezzanine appears to have been extended along the north side of the building subsequent to the original construction.

The main floor is a combination of 4 ½" concrete slabs on steel beams within the two circular sections of the building and 5"wide x 8" deep concrete joists spaced at 25" o/c with a 2 ½" concrete slab in the remainder of the main floor.

The basement is a combination of a 5" reinforced concrete two way flat slab with a crawlspace in the central circular section of the building and a 5 " reinforced concrete slab supported on the underlying soil in the remainder of the areas.

The original construction drawing s indicate that the building is founded on cast in place concrete piles and the foundation walls are 10" thick cast in place walls reinforced horizontally and vertically.

STRUCTURAL CONDITION

In general the building is in sound structural condition.

The wood roof framing appears in good condition however there appears to have been some shrinkage to the wood members over time which has caused a narrow gap to develop in the decking at the top of the roof around the central skylight. The condition does not pose an immediate structural concern however will require the installation of supplementary supports to reinstate the full bearing of the roof deck.

There are two non-structural 'columns' that support a display on the second floor mezzanine. With the shrinkage of the wood there appears to be a slight deflection of the structure that has resulted in the decking coming in contact with the 'columns'. The 'columns appear to be exerting upward pressure on the decking which has caused a slight distortion in the decking. This can be alleviated by removing or modifying the 'columns' to ensure they are not in contact with the decking.

There is evidence of moisture leak around the steel saddles that support the glu-laminated beams in the one story section of the building where the beam penetrates the exterior wall. Prolonged exposure to we service conditions can compromise the integrity of the wood framing. This condition will require further study that will require partial removal of select finishes

The mezzanine and main floor structures are in good condition and appear to be performing well.

The structurally supported section of the basement level also appears in good condition with no signs of duress.

The slab on grade portions of the floor in the rear storage area and the multipurpose room show minor signs of heaving which is common for this type of construction. The underlying soil in the Winnipeg area is a highly plastic clay which is subject to volume changes with changes in soil moisture content. Specifically as the moisture content decreases the clay shrinks and settlement a can occur. Inversely as the moisture content increases the clay swells and heaving can occur as was evident in this instance. The degree of movement noted would be considered normal and does not pose either a structural or safety concern.

There is a hairline horizontal crack that extends along the entire south wall of the basement storage area. There are no signs of seepage nor is the wall visibly displaced. The crack does not appear new. We suspect that it is likely a flexural crack that has occurred over prolonged exposure to the soil pressure. We recommend that the condition of the crack be monitored to determine if there is any active movement this can be done with the aid of crack monitors that would be mounted to the wall over the crack. In addition the area should be periodically monitored to detect any seepage should it occur in the future. Redial measures may be required pending the outcome of the monitoring.

The exterior barrier free ramp is not shown on the original construction drawings as such it was likely a subsequent addition. There is a crack that appears to have previously been patched at the junction of the ramp and the stairway. It appears to be the result of differential movement between the original construction and the subsequent addition. The cracks appear largely to be a nuisance issue that will require periodic repairs in the future.

The enclosure that houses the exterior stair from the basement appears to be leaking. There are signs of moisture staining and deterioration of the wood sub framing. Remedial measure will be required that may need to include re-cladding or reconfiguration of the enclosure.

Mechanical / Electrical

epp siepman engineering inc.
mechanical & electrical engineers

Condition Report
St. Vital Library
6 Fermor Ave, Winnipeg, MB

Client: MCM Architects

Date: November 26th, 2014

ESE Job Number: 14071

epp siepman engineering inc.
mechanical & electrical engineers

303-100 Osborne St. South
Winnipeg, MB R3L 1Y5
p: 204.453.1080 f: 204.453.1335
www.eppsiepman.com

The following report is based upon a site assessment performed by Johann Baetsen and Matthew Penner on June 4, 2014 with a follow up trip on August 29, 2014. The contents of the report are based upon visual inspection of mechanical and electrical systems only. No technical testing or analysis has been undertaken, and materials and systems located in inaccessible locations were not viewed.

Written by:

Johann Baetsen, P.Eng.

Mechanical

Matthew Penner, P.Eng.

Electrical

Reviewed by:

PROVINCE OF MANITOBA
2014-11-27
D. A.
EPP
Member
10091
REGISTERED PROFESSIONAL ENGINEER

David Epp, P.Eng.

Mechanical

PROVINCE OF MANITOBA
M. G.
PENNER
Member
23792
2014-11-27
REGISTERED PROFESSIONAL ENGINEER

Matthew Penner, P.Eng.

Electrical

ese

Table of Contents

Introduction

St. Vital Library a single storey library with mezzanine constructed in 1963 located in Winnipeg, Manitoba that is operated by the City of Winnipeg. This report will provide condition assessments of the mechanical and electrical systems in the context of a proposed refresh. An elevator installation and interior modifications are currently being undertaken by the City, and that scope is not considered in this report.

Executive Summary

Summary of Plumbing Recommendations

The plumbing recommendations are based on a combination of existing conditions, best practice, code requirements, and the program of requirements for the St. Vital Library.

The current plumbing system is a cast iron and copper piping system throughout that is original to the building. The domestic water service is a one inch incoming service which can handle approximately 42-60 fixture units as per the plumbing code. The new programming is asking for flush valve water closets which require approximately 20-40 fixture units each depending on quantity. A new service should be considered to increase the incoming water service.

Plumbing Recommendations:

1. Scoping of the existing sanitary mains is recommended to determine the internal condition and continuity of the pipe.
2. Replace the existing domestic water service with a new larger service sized to handle the installation of new flush valve, electronic valve, low flow toilets and urinals as per the program.
3. Alternatively - New low-flow universally accessible tank-style toilets and lavatory fixtures in all washrooms to meet the requirements of the new program requirements and current codes.
4. Provide new floor-mounted service sinks and a new faucets complete with backflow prevention meeting the new design location and requirements.
5. Replace the aging hot water tank with a new unit of equal size. Provide a hot water recirculation system for the washrooms and sinks, especially when low-flow aerators are installed in the lavatories
6. Complete the hookup of the eyewash station in the boiler room.

Summary of HVAC Recommendations

The primary concern with the HVAC system is the complete lack of ventilation air provided to the main and second floors. The basement areas have 500 CFM of ventilation air but it is unknown how much of that air would be reaching the main and second floor occupants.

The HVAC system for the building is made up of the existing hydronic heating system with boilers and pumps replace around the year 2003 and original wall fin, radiant and unit ventilators. The hydronic distribution does not have a redundant pump system leaving the building venerable to freezing during the winter. A retrofit to added cooling to the main and second floors sometime in 1999 or 2000 and another unit in 2010 with no outside air ventilation connections. A central washroom exhaust fan serves the basement as well as the main floor washrooms.

HVAC Recommendations:

7. Provide a new pump on the secondary distribution to allow for redundancy.
8. Consider: Providing new condensing boilers and cascading system to increase the energy efficiency of the overall heating system.
9. Have a chemical treatment expert take samples of the exiting hydronic fluid and provide a chemical analysis on the hydronic fluid.
10. Provide a full cleaning of the system depending on the results of the chemical treatment.
11. Provide a side stream filter and air separator to the system.
12. To increase the energy efficiency of the system consider replacing the existing actuators and thermostats with new units connected to a building automation system.
13. Provide a central Building Automation System (BAS) to monitor and control the building, optimizing the efficiency.
14. Consider: replacing the aging wall, radiators and ventilators with new wall fin system meeting the library design.
15. Replace the existing basement air system with a new indoor air handler and controls serving the basement. The unit will have a heating coil and DX cooling coil and be connected to the existing distribution.
16. Replace the existing exhaust system with and connect it to a Heat Recovery Ventilator (HRV) system to reclaim the energy from the exhaust air.
17. Replace the older air handlers and condensing units with a new unit. The exact size will be calculated during the design phase. These air handlers will receive ventilation air from a central HRV system, located in the basement and will help distribute the ventilation air throughout the main and second floor. Ducting the ventilation air to these units may be a challenge given the existing structure and ceiling heights.
18. Replace the crawlspace exhaust with a new system that monitors the temperature and humidity to trigger the ventilation fan. The new system should provide a dedicated outdoor air intake with insulated motorized dampers instead of air from the occupied space. .

Summary of Fire & Life Safety Recommendations

Emergency & Exit Lighting Recommendations:

19. Provide new emergency lighting and pictogram style exit signage systems throughout.
20. Provide additional emergency lighting in the electrical room, and all basement public areas.

Fire Alarm System Recommendations:

21. Install new addressable detection and visual/audible signalling devices in all areas with all new wiring. New devices layouts should meet current code requirements.
22. Add duct type smoke detectors c/w shutdown to any air handling units serving more than one fire compartment.
23. Lower pullstation heights to 1200mm AFF to centre of device.

Fire Protection Recommendations:

24. Review the fire extinguisher types and locations based on the final renovation to ensure conformance with the current NFPA 10 code.

Summary of Electrical Recommendations

Site & Exterior Recommendations:

25. Provide new energy efficient LED exterior lighting in the parking lot.
26. Replace existing building exterior lighting with new energy efficient LED exterior lighting.
27. Provide new IPLC receptacles for parking lot staff stalls. Revise installation details to meet new electrical codes.

Distribution Recommendations:

28. Replace existing panelboards with new 120/240V, 1 phase, 3 wire, 60 circuit panelboards throughout. Provide new wire and conduit from main distribution to panelboards to suit.

Lighting Recommendations:

29. Where installing new lighting for the renovation, provide dimming luminaires and daylighting controls to adjust lighting output levels to supplement natural lighting levels.
30. Lower all light switch locations to 1200mm to meet City of Winnipeg Accessibility Design Standards.
31. Provide occupancy sensors to turn on / shut off lighting in areas where activity is limited. Maintain overall lighting contactor control to provide manual full shut-off after hours.

Devices Recommendations:

32. Replace existing switches and receptacles with new manual specification grade devices throughout. New receptacles should be tamper proof throughout all public areas.
33. Provide additional receptacles and circuits to new computer workstations where required.
34. Wire and connect new door operators where required.

35. Wire and connect new devices as required including auto-checkout devices, and library signage.
36. Maintain and relocate transit radio system to accommodate renovation requirements.

Summary of Communication Systems Recommendations

Communication Cabling Systems Recommendations

37. Replace all voice and any data cabling with new CAT6 cabling. Terminate on relay rack and provide interconnects to existing telephone field as required.
38. Provide new CAT6 cabling from existing rack in electrical room to new communication outlets as required.

Buzzer Assistance System Recommendations

39. Demolish existing buzzer system.
40. Provide new bell and buzzer system for staff room function. Coordinate locations of new buttons and buzzers with renovation design and staff requirements.

Public Address System Recommendations

41. Pending the scope of renovations, it will need to be determined how the existing speakers fit into the redesign of the library. New speakers may be required to accommodate new design requirements.
42. Provide new wiring from speaker locations to staff room to accommodate requirement for equipment location to be housed in staff room.
43. Given no issues are reported and zoning on the existing amplifier is sufficient, we recommend that the existing amplifier/mixer be maintained and reused provided that it can supply sufficient power to a new speaker layout as referenced above. Relocate into staff room.

Summary of Security Systems Recommendations:

CCTV System Recommendations:

44. Install a new CCTV system. Extent of coverage required to be determined in conjunction with City of Winnipeg staff as part of the design scope.

CCTV System Recommendations:

45. Install a new access control system to be integrated with existing City of Winnipeg Pegasus system. Locations of access control points to be determined in consultation with library staff.
    a. Electrical Room
    b. Program Room Storage
    c. Branch Head Office
    d. Staff Room

Intrusion Alarm Recommendations:

46. Maintain existing alarm system and tie into City of Winnipeg Pegasus monitoring system.

Panic Alarm Recommendations:

47. Maintain existing panic alarm system.

Mechanical

Plumbing Systems

The building domestic water is served by a one inch water supply from the north side of the building. The distribution throughout the building is copper although the type of copper could not be determined. The domestic water is distributed to the main floor in the wall cavities and to the basement fixtures through the crawlspace. The small size of incoming water service will limit the new design to flush tank fixtures. The sanitary size could not be determined onsite and the original drawings do not indicate the design size. The rain water from the roof is externally discharged to grade and does not appear to have any internal drain locations. It would be safe to assume the existing sanitary pipe leaving the building is likely made of cast iron given the age of the original building. There was no indication of a sump pit or sump pump location on the drawing or in the building.

1. Scoping of the existing sanitary mains is recommended to determine the internal condition and continuity of the pipe.

The building has a natural gas service on the south side of the building with the meter located in the boiler room. The service is connected to two boilers and one hot water tank both located in the boiler room.

The main floor public washroom was converted from the original two washrooms (male and female) to a single universal accessible washroom. The water closet was a low flow 6 gallons per flush, tank style unit. The lavatory is a counter mount unit. The sanitary pipe off the lavatory is ABS and presumably connects to the cast iron riser within the wall. There is a private washroom for the staff adjacent to the lunch room that includes a toilet and a lavatory. This washroom and fixture group appears to be original. The basement washrooms also appear to be original except that the men's toilet has been replaced with a low-flow model.

2. Replace the existing domestic water service with a new larger service sized to handle the installation of new flush valve, electronic valve, low flow toilets and urinals as per the program.
3. Alternatively - New low-flow universally accessible tank-style toilets and lavatory fixtures in all washrooms to meet the requirements of the new program requirements and current codes.

The building has two janitor sinks, one on the main floor and one on the basement level. These sinks and faucets are original with the building and are the pedestal type that requires lifting the mop bucket into the sink. The faucets did have back flow preventers that are a requirement on all service sinks.

4. Provide new floor mounted service sinks and a new faucets complete with backflow prevention meeting the new design location and requirements.

The boiler room contains the hot water heating tank, which is a 40 gallon with 36,000 BTU input dated February 1994, with no recirculation system. An eye wash station is located in the boiler room attached to the wall but was not connected to the sanitary of domestic feeds.

5. Replace the aging hot water tank with a new unit of equal size. Provide a hot water recirculation system for the lavatories and sinks, especially when low-flow aerators are installed in the lavatories
6. Complete the connection of the eyewash station in the boiler room.

Figure 1. Main Floor Washroom

Heating, Ventilation, and Air Conditioning (HVAC) Systems

The HVAC system for the building is made up of the existing hydronic heating system that distributes to wall fin and unit ventilators. A retrofit to added cooling to the main floor appears to have taken place in the year 1999 or 2000 based on the equipment serial numbers. There does not appear to be any ventilation air serving the main floor library. The basement is served by a set of fans that provides ventilation and return air to the various rooms. A central washroom exhaust fan serves the basement as well as the main floor washrooms.

Hydronic System

The building heating is provided by a pair of hydronic boilers coupled to wall fin and unit ventilators throughout the main floor and basement. The two boilers have been replaced some time in

2002/2003 with atmospheric, 82% efficient units Galaxy gas fired cast iron boilers with an input of 399,000 BTU/hour each. Combustion air is provided to the boilers through an insulated combustion air trap that is sized at 24x12 and meets the current code requirements. The boilers are coupled with a primary circulator pump and expansion tank. The system is a primary/secondary reverse-return loop distribution with the secondary loop distributing the hot water to the wall fin and unit ventilators. The secondary main distribution pipes are 2-1/2" which typically would handle around 60 GPM. Based on the original drawings and the heat loads indicated (550 MBH), it is estimated that the flow is approximately 55 GPM, however the exact flow could not be determined onsite. The secondary pump is a single Grundfos UP53-45F. This is a single pump serving the building distribution with no redundancy on the pumping.

7. Provide a new pump on the secondary distribution to allow for redundancy.
8. Consider: Providing new condensing boilers and cascading system to increase the energy efficiency of the overall heating system.

The pipe distribution is black steel pipes and externally appears in good shape. The internal pipe condition would be very dependent on proper chemical treatment. There is a chemical pot feeder on the floor but no side stream filter or air separator could be found on the system. These provide sediment and air separation from the liquid, extending the life of the system.

9. Have a chemical treatment expert take samples of the existing hydronic fluid and provide a chemical analysis.
10. Provide a full cleaning of the system depending on the results of the chemical treatment.
11. Provide a side stream filter and air separator to the system.

The majority of the pipe insulation is still in good shape but the elbow insulation has been removed most cases probably due to the asbestos content. Control of the heating is provided by electric motor valves connected back to thermostats throughout the space.

12. To increase the energy efficiency of the system consider replacing the existing actuators and thermostats with new units connected to a building automation system.
13. Provide a central Building Automation System (BAS) to monitor and control the building, optimizing the efficiency.

The wall fin throughout the building appears original, manufactured by Sunnywall. In some areas, like the staff room and basement, radiators were installed and appear original. The unit ventilators located on the second floor are also original Trane units with a manual speed switch and thermostat located on the wall next to the unit.

14. Consider: replacing the aging wall, radiators and ventilators with new wall fin system meeting the library design.

Ventilation System

The primary concern with the HVAC system is the complete lack of ventilation air provided to the main and second floors. Based on ASHRAE 62.1 these areas would require approximately 1000 CFM of ventilation air based on ASHRAE 62.1 estimated occupant density for the main floor alone. The

basement areas have 500 CFM of ventilation air but it is unknown how much of that air would be reaching the main and second floor occupants.

The basement ventilation system is original to the building. The supply fan provides ventilation the basement spaces. The unit has a filter section and heating coil that would temper the air temperature up prior to distribution. The unit has a return fan that allows it to enter into economizer mode to assist in cooling during the year. The supply and return fans also appear original along with the controls. There was no indication of humidification on the unit. The overall built up system does not have a cooling coil which could limit the possible activities during hot summer days.

15. Replace the existing basement air system with a new indoor air handler and controls serving the basement. The unit will have a heating coil and DX cooling coil and be connected to the existing distribution.

The washroom exhaust fan serves the basement washrooms and kitchenette and the main floor washrooms, janitors' closet, and staff lunch room. Each washroom is exhausting approximately 60 CFM which would meet today's washroom exhaust requirements. The total exhaust air from the building is 500 cfm which indicates that there is only 500 cfm of ventilation air being supplied to the whole building via the basement air handling system described above.

16. Replace the existing exhaust system with and connect it to a Heat Recovery Ventilator (HRV) system to reclaim the energy from the exhaust air.

The main floor has been retrofitted with 3 main air handling units (AHU) and one mini split AC unit to provide cooling to the main and second floor area. These AHUs are not connected to a ventilation system and therefore only recirculate and cool the air. Each unit is roughly 1200 CFM with approximately 4 tons of cooling. Two units were installed in the late 90's early 2000's with a third unit installed around 2010. The supply duct distribution was a retrofit to the building and has done a good job on hiding most of the ducts. The return path are accommodated through door grilles, and floor grilles to transfer space air back the units. A space thermostat in each area controls the unit cooling systems. These are not connected to the heating system and therefore can have the potential to run simultaneously. The condensing units are located outside in caged areas and appear to match the air handler's age. The condensing unit install in 2010 has R410 refrigerant whereas the older units have R22 refrigerant which is currently being discontinued. .

17. Replace the older air handlers and condensing units with a new unit. The exact size will be calculated during the design phase. These air handlers will receive ventilation air from a central HRV system, located in the basement and will help distribute the ventilation air throughout the main and second floor. Ducting the ventilation air to these units may be a challenge given the existing structure and ceiling heights.

The crawlspace area is exhausted with air being taken from the basement occupied space. The exhaust fan and discharge duct is located in the boiler room.

18. Replace the crawlspace exhaust with a new system that monitors the temperature and humidity to trigger the ventilation fan. The new system should provide a dedicated outdoor air intake with insulated motorized dampers instead of air from the occupied space. .

Figure 2. Basement Ventilation System

Fire & Life Safety

Emergency & Exit Lighting

Exit lighting is provided through a combination of glass-globe style exits, traditional red letter “exits”, and new green pictogram style signage. The mixture of exit signage styles does not meet the code requirement for consistent signage. All exit signage should be replaced with new pictogram style exit signage.

Emergency lighting is installed throughout the building, and appears to have been added after the original construction. In general, coverage is not complete throughout the public areas and additional lighting should be added. Emergency lighting is not installed in the electrical room. In conjunction with the exit lighting recommendations above, we would recommend that the emergency lighting system be upgraded and replaced.

Emergency & Exit Lighting Recommendations:

19. Provide new emergency lighting and pictogram style exit signage systems throughout.
20. Provide additional emergency lighting in the electrical room, and all basement public areas.

Fire Alarm System

The fire alarm system is a conventional Mircom system with a main panel located in the electrical room. There is no annunciator installed at any of the entrance doors. Power for the main panel is supplied through a separate fused distribution box fed directly off the main distribution.

The City of Winnipeg currently has a project underway to upgrade the main fire alarm panel and add an annunciator at the lobby door.

A combination of smoke and heat detectors are installed throughout in the flat ceiling area between wooden structural beams. Detectors are not installed in every beam pocket. Notification is provided through bells throughout. Pull stations are located at each exit and additional areas throughout the building, however are installed at a height that does not meet the current City of Winnipeg Accessibility requirements.

The system appears to be original to the building. Some detectors have been replaced throughout the life of the system and there is now a mix of heat and smoke detection throughout. Although it is still functioning and has been maintained, it has reached it typical life expectancy.

Current installation codes for fire alarm systems (CAN/ULC –S524-06) require that detector spacing be modified around beam construction. Additional smoke and heat detectors are required to meet current installation codes.

Manual pull stations are located at all exits and are installed above heights required by the City of Winnipeg Accessibility By-Law.

Fire Alarm System Recommendations:

21. Install new addressable detection and visual/audible signalling devices in all areas with all new wiring. New devices layouts should meet current code requirements.
22. Add duct type smoke detectors c/w shutdown to any air handling units serving more than one fire compartment.
23. Lower pullstation heights to 1200mm AFF to centre of device.

Fire Protection

The building is not sprinklered. Fire extinguishers are located near exits and hanging on the wall with labels. The extinguisher types and locations shall to be reviewed during the renovation to ensure conformance with the current NFPA 10 code.

Fire Protection Recommendations:

24. The fire extinguisher types and locations shall need to be reviewed based on the final renovation to ensure conformance with the current NFPA 10 code.

Electrical

Site & Exterior

The site is provided with service from Manitoba Hydro and MTS through an overhead service from the pole line located to the rear of the building.

Building exterior lighting is provided by HPS wallpacks. The parking lot is lit with lamp standards which appear to be HPS technology. As the investigation was performed during the day, the report writer was unable to confirm the lighting technology. HID (HPS) lighting is highly energy efficient compared to other lighting sources, however the quality and distribution of lighting is of a lesser grade than LED sources. The luminaires have reached their life expectancy.

Uncontrolled parking lot receptacles are provided for some parking stalls. Receptacle installation for parking lot receptacles no longer meet current code requirements.

Site & Exterior Recommendations:

25. Provide new energy efficient LED exterior lighting in the parking lot.
26. Replace existing building exterior lighting with new energy efficient LED exterior lighting.
27. Provide new IPLC receptacles for parking lot staff stalls. Revise installation details to meet new electrical codes.

Main Distribution

The main electrical distribution is located in the basement electrical room and comprised of a Amalgamated 120/240V, 1ø, 3W, 200A Main Distribution complete with CDP output section. Four (4) panelboards are fed from the CDP. There are no spaces available. No damage or significant wear is visible on the main distribution, metering, CDP section and associated breakers.

Main Distribution Recommendations:

It is anticipated that the service will be upgraded to a 3-phase service as part of the City of Winnipeg elevator upgrade project so no recommendations are provided at this time.. (The service upgrade is outside of the scope of this report)

Panelboards

Panelboards are manufactured by Amalgamated (with the exception of Panel AC) and located in the basement main electrical room and on the main floor behind the circulation desk. Original manufacturer breakers are no longer available for the panelboards.

Panel A (Panel 100) is a 120/240V,1 phase, 3 wire, 200A, 30 circuit panel fed with a 150A/2P breaker, recess mounted behind the main circulation desk. There are seven spaces available in the panel. These spaces are anticipated to be filled with the City of Winnipeg's elevator upgrade project.

Panel B (Panel 200) is a 120/240V,1 phase, 3 wire, 200A, 30 circuit panel fed with a 150A/2P breaker, recess mounted behind the main circulation desk. There are two spaces available in the panel.

Panel 300 is a 120/240V,1 phase, 3 wire, 200A, 42 circuit panel fed with a 200A/2P breaker, surface mounted in the main electrical room. There are no spaces available in the panel and a number of breakers have been replaced with split-breaker types to expand circuit capacity.

Panel AC is a 120/240V,1 phase, 3 wire, 100A, 16 circuit panel by Sylvania fed with a 100A/2P breaker, surface mounted in the main electrical room. There are six spaces available in the panel.

Junction boxes and extension rings have been cut into the wall and installed on the rear of Panels A & B to facilitate upgrades that have occurred over the years.

Figure 1: Junction Boxes & Extensions on Rear of Panelboards A & B

Panelboard space capacity will be insufficient to provide the additional circuits and devices requested for new computer workstations.

Distribution Recommendations:

28. Replace existing panelboards with new 120/240V, 1 phase, 3 wire, 60 circuit panelboards throughout. Provide new wire and conduit from main distribution to panelboards to suit.

Lighting

Lighting is provided throughout the main floor through a combination of surface mounted T8 fluorescents, and pendant lighting with LED lamps. Main floor lighting appears to be installed in the last 10 years and no significant issues were apparent.

Basement lighting is provided through recessed T8 fluorescent lighting in the public areas and surface T8 fluorescents in maintenance areas.

In general, lighting is of energy efficient fluorescent types, however additional energy savings could be achieved through further control and dimming. Daylighting controlled dimming systems would allow lighting to adjust to natural lighting conditions. Pending the scope of renovation plans, new lighting may be required to suit the design requirements.

Light switches are mounted at 1300mm (52”) to the bottom of the switch plate, whereas City of Winnipeg Accessibility Design Standards require light switches to be mounted between 900mm and 1200mm above finished floor.

Lighting is manually switched throughout the building. A lighting contactor (recently upgraded) controls all public area lighting throughout the library.

Lighting Recommendations:

29. Where installing new lighting for the renovation, provide dimming luminaires and daylighting controls to adjust lighting output levels to supplement natural lighting levels.
30. Lower all light switch locations to 1200mm to meet City of Winnipeg Accessibility Design Standards.
31. Provide occupancy sensors to turn on / shut off lighting in areas where activity is limited. Maintain overall lighting contactor control to provide manual full shut-off after hours.

Devices

Manual toggle lighting switches are well worn and in need of replacement. Receptacles are in varying condition throughout and are generally worn.

In some locations, floor pedestal receptacles have been removed and replaced with blank plates.

Battery powered clocks are located around the facility.

A transit 900Mhz radio box is installed in the basement outside of the mechanical room. Antenna lines are routed up to the roof.

Devices Recommendations:

32. Replace existing switches and receptacles with new manual specification grade devices throughout. New receptacles should be tamper proof throughout all public areas.
33. Provide additional receptacles and circuits to new computer workstations where required.
34. Wire and connect new door operators where required.

35. Wire and connect new devices as required including auto-checkout devices, and library signage.
36. Maintain and relocate transit radio system to accommodate renovation requirements.

Communications

Communication Cabling Systems

The building telecommunication entrance and communication room is co-located in the basement with the main electrical equipment. The building is served by fibre optic, coaxial cable and CAT3 multi-pair for voice services.

A floor mounted relay rack is installed in the electrical room and houses patch panels, and network equipment. The rack is bonded to ground. CAT5 & CAT5e network cabling is extended to workstations from the rack, however varying degrees of installation quality (cable routing and support) was observed. Cabling and patch panels are a mix of vendors. CAT3 cabling is routed from a voice field to telephone locations in the library.

For the renovation, new cabling to workstations will be required.

Communication Cabling Systems Recommendations

37. Replace all voice and any data cabling with new CAT6 cabling. Terminate on relay rack and provide interconnects to existing telephone field as required.
38. Provide new CAT6 cabling from existing rack in electrical room to new communication outlets as required.

Buzzer Assistance System

An existing buzzer system is installed with a buzzer located in the basement and call buttons at the main and mezzanine floors. The library staff reported that the system was not used.

The staff room is currently not equipped with a buzzer system as required in the space programming documents.

Figure 2: Main Floor Buzzer Button Location

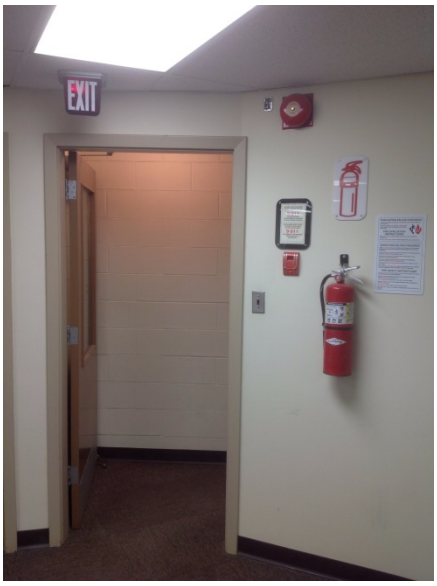


Figure 3: Basement Buzzer Location

Buzzer Assistance System Recommendations

39. Demolish existing buzzer system.
40. Provide new bell and buzzer system for staff room function. Coordinate locations of new buttons and buzzers with renovation design and staff requirements.

Public Address System

The building is equipped with a public address system. The amplifier/mixer is a TOA 500 series and is located in the main library circulation desk along with the microphone for paging announcements. Bookshelf-style speakers are located throughout the library facility in public and work areas on the main floor. Basement speakers are recessed in the dropped t-bar ceiling. No issues were reported with the operation of the system.

Public Address System Recommendations

41. Pending the scope of renovations, it will need to be determined how the existing speakers fit into the redesign of the library. New speakers may be required to accommodate new design requirements.
42. Provide new wiring from speaker locations to staff room to accommodate requirement for equipment location to be housed in staff room.
43. Given no issues are reported and zoning on the existing amplifier is sufficient, we recommend that the existing amplifier/mixer be maintained and reused provided that it can supply sufficient power to a new speaker layout as referenced above. Relocate into staff room.

Security

CCTV System:

There is currently no CCTV system installed in the building.

CCTV System Recommendations:

44. Install a new CCTV system. Extent of coverage required to be determined in conjunction with City of Winnipeg staff as part of the design scope.

Access Control System:

There is currently no Access Control system installed in the building.

CCTV System Recommendations:

45. Install a new access control system to be integrated with existing City of Winnipeg Pegasus system. Locations of access control points to be determined in consultation with library staff.
    a. Electrical Room
    b. Program Room Storage
    c. Branch Head Office
    d. Staff Room

Intrusion Alarm System:

An intrusion alarm system is installed in the building. A main keypad is installed at the rear entrance door, door contacts are provided on all exterior doors, and motion detectors are installed throughout. An alarm siren is located at the front door.

Intrusion Alarm Recommendations:

46. Maintain existing alarm system and tie into City of Winnipeg Pegasus monitoring system.

Panic Alarm System:

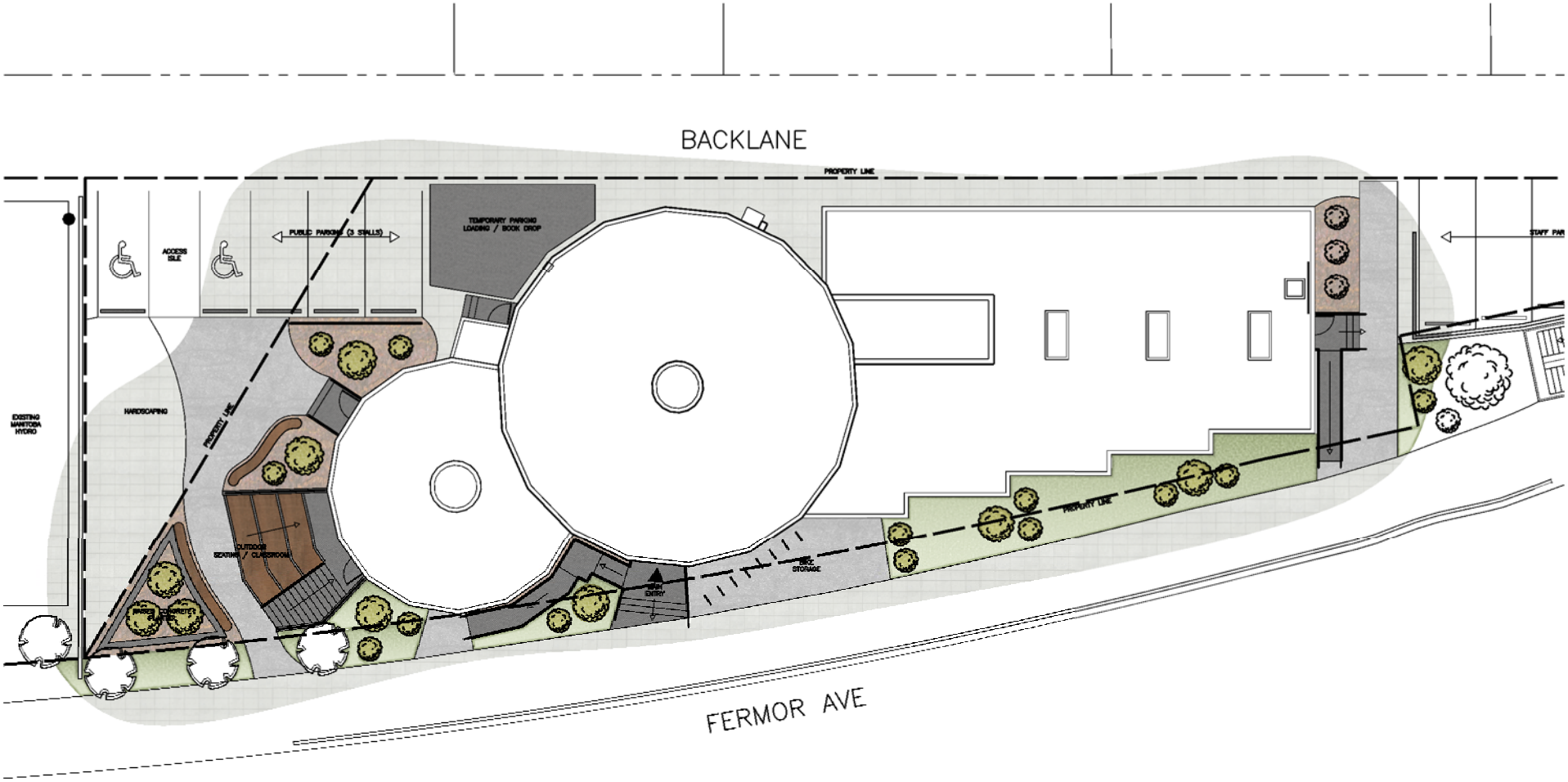
A panic alarm system is installed with red mushroom panic buttons in basement office spaces. Alarms are local only.

Figure 4: Panic Alarm Button

Panic Alarm Recommendations:

47. Maintain existing panic alarm system. Install additional panic buttons as required to suit new architectural layouts.

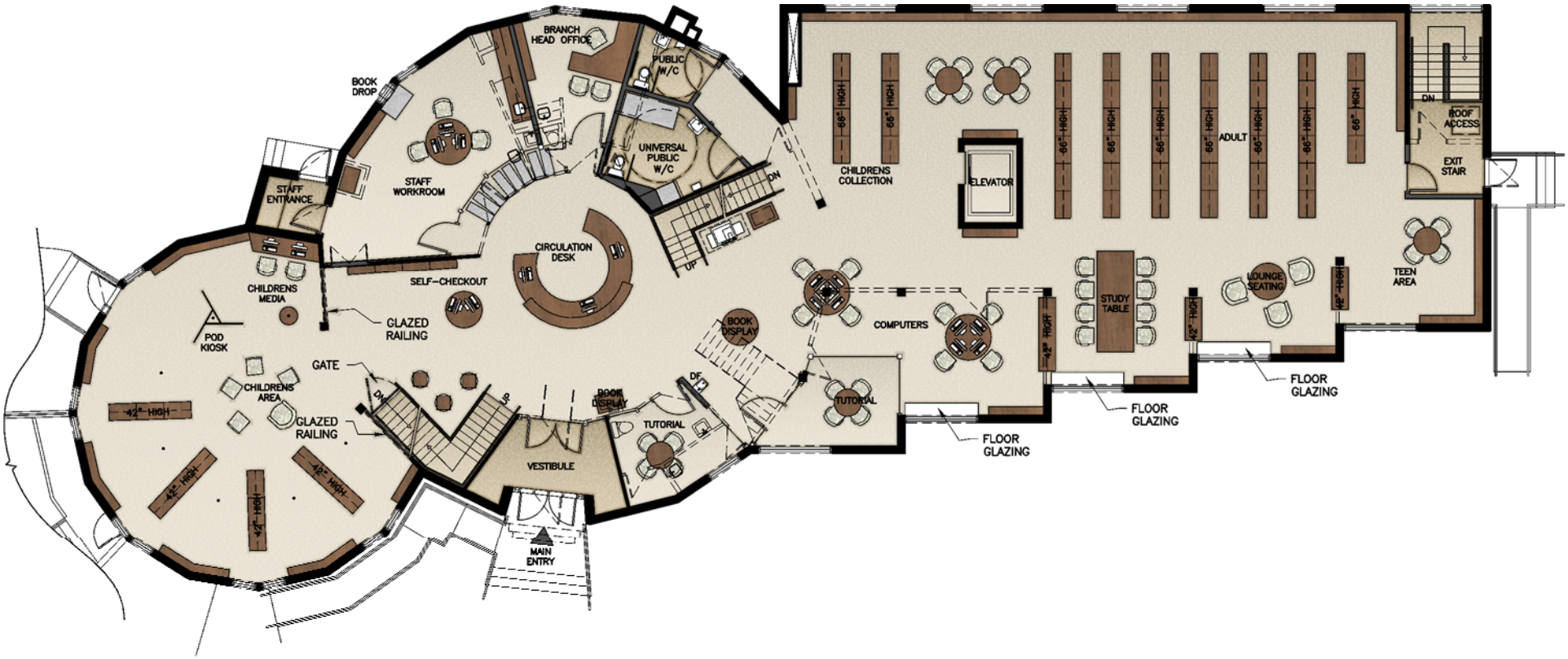
Proposed Functional Schematic Layout



North

Site Plan Proposed Layout

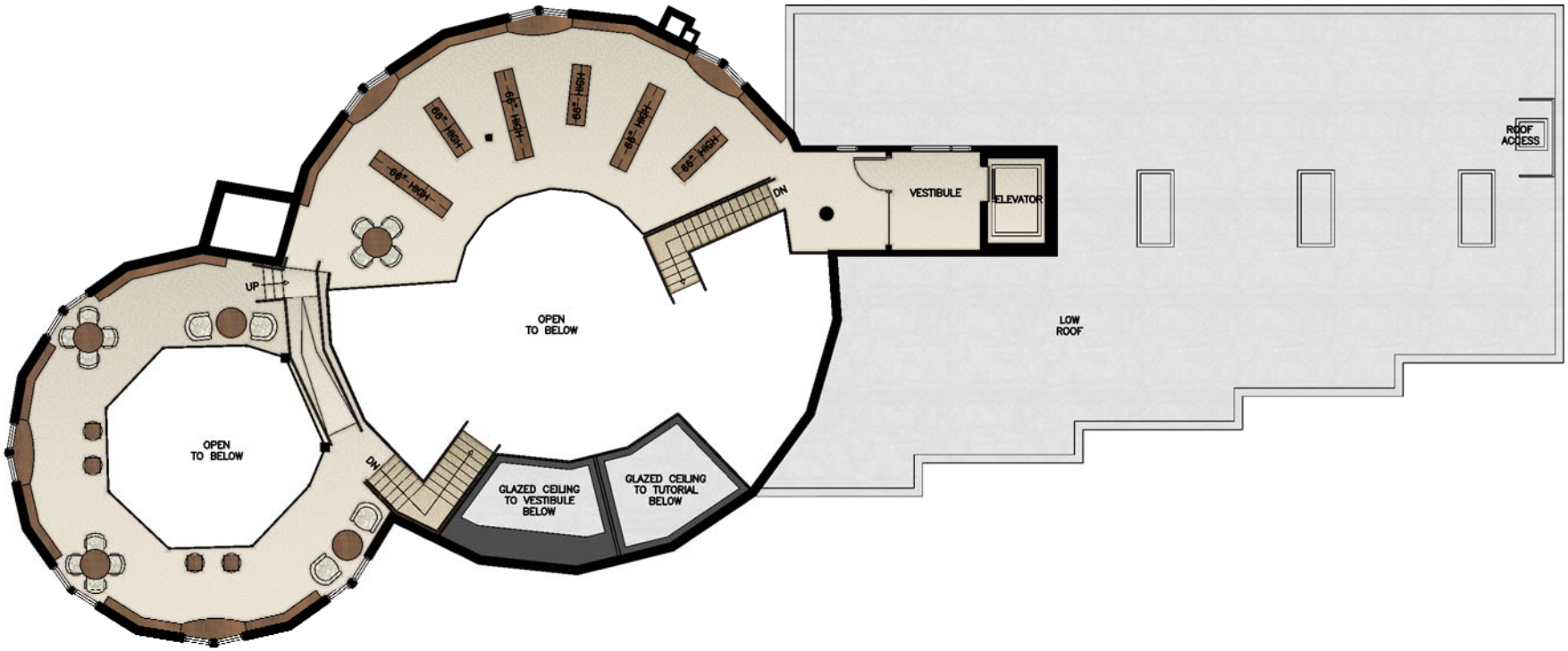
mcm architects inc.



North

Main Floor Plan Proposed Layout

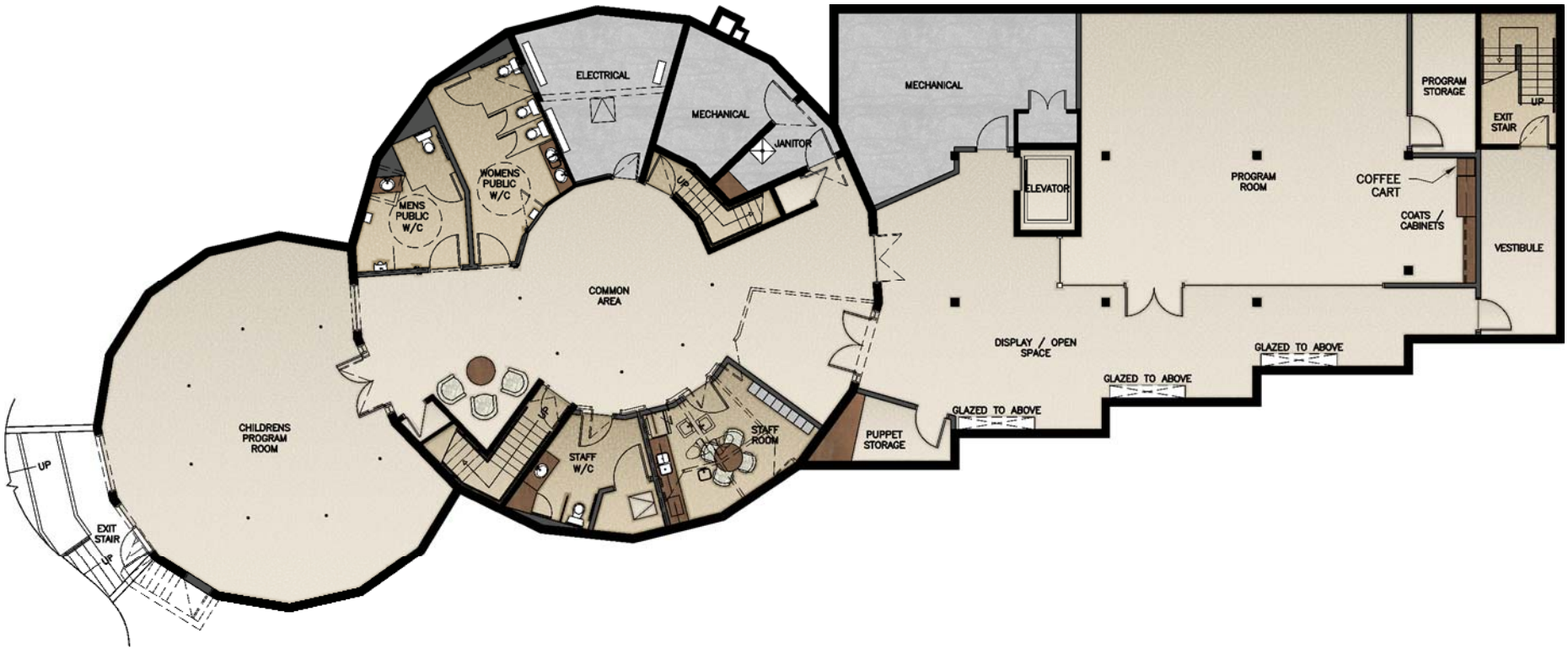
mcm architects inc.



North

Mezzanine Floor Proposed Layout

mcm architects inc.



North

Basement Floor Plan Proposed Layout

mcm architects inc.

Proposed Scope of Work & Outline Specifications

mcm architects inc.

141 St. Anne's Road
Winnipeg, Manitoba, Canada
R2M 2Z3

Phone: (204) 943-7564
Fax: (204) 947-0187
Email: info@mcmarchitects.ca

St.Vital Library – 6 Fermor Avenue
Proposed Scope of Work & Outline Specifications

The following scope of work and outline specifications have been generated for the purposes of providing a Class "C" cost estimate. It has been based on the proposed schematic drawings along with findings and recommendations found within the building condition assessment. The scope of work following includes Architectural, Building Envelope and Structural requirements. Refer to Mechanical and Electrical outline specifications.

General

- Remove existing partitions as denoted by dashed lines. Construct all new interior partitions, shown with solid black infill. Interior partitions to be 5/8" painted GWB on 6" steel stud framing at 16" o.c. complete with sound attenuating batt insulation full cavity.
- Remove all existing interior doors and frames. Modify existing rough openings so as to accommodate new 3'-3" doors as required by the City of Winnipeg. Provide new solid core wood doors and hollow metal frames.
- Provide new barrier free compliant hardware throughout building on all new doors.
- Remove all existing flooring and provide new throughout. Provide new detectable warning strips at top and bottom of ramp and all stairs including all stair treads.
- Remove all existing ceiling tile c/w grid system and provide new where identified.
- Remove all existing built-in millwork including main entry reception desk.
- Remove all existing interior stair handrails and provide new wood handrails on both sides of all stairs.
- Patch and make good all existing surfaces to remain and all affected surfaces due to construction. Provide new paint finish.
- Provide 4'-0" high stainless steel corner guards for all exposed outside GWB corners.
- Asbestos has been identified on the following: Pipe fitting insulation, floor tile within the basement and stucco ceiling in electrical room. Provide costs for abatement.

Exterior

- Revise parking lot and loading layout to the East of the existing building. Remove existing and provide new asphalt paving c/w painted lines and precast concrete curb stops.
- Excavate down to basement level, demolish existing metal and wood framed exit stair enclosure and construct new concrete retaining wall system and tiered structure East of existing building. Provide wood seating within tiered areas.
- Construct seating area and all walkways around building with concrete paving stones.
- Demolish existing concrete stairs, landing and ramps. Construct new exterior ramps, landings and stairs at Main Entry, West exit and East exit. Include painted steel pipe railings, guardrails, detectable warning material at top and bottom landings as well as on all tread surfaces.
- Provide new sod, landscaping, plantings and all site furniture.
- Provide 8 painted steel bike racks adjacent to main entrance.
- Remove existing paint finished off of exposed concrete foundation, patch and re-paint.
- Remove and provide new prefinished steel rain water leaders to match existing profiles along with precast concrete splash pads to suit.
- Provide for a minimum of 5 exterior light standards around existing building.

Envelope

- Remove existing rusted metal panels and provide new prefinished metal flashing, fascias and panels around entire library.
- Repair damaged areas of caulking around entire building.
- Remove existing roofing and parapet construction down to existing roof deck level. Construct new R-30 roofing and increase height of existing parapets as required to accommodate new roofing material.
- Modify existing roof access hatch to accommodate new roofing material. Provide new guardrail system around existing roof hatch.
- Remove existing skylight systems. Provide new skylights to suit existing roof opening profiles. Construct new curbing to suit additional thickness of roofing insulation.
- Remove all existing window systems and provide new energy efficient commercial grade aluminum curtain wall window systems c/w triple glazing. Provide for 25% operable.
- Remove all existing exterior door and frame systems and provide new insulated aluminum door and frames for the Main Entry and East exit and insulated painted hollow metal door and frame at West exit.
- Clean up existing crawlspace and re-grade complete with continuous poly ground cover, French drain and sump-pit system.

Main Floor Level

- Demolish existing stair construction leading up to mezzanine area above main entry vestibule.
- Demolish portion of existing mezzanine floor construction above main entry vestibule and tutorial room for new glazed floor system. Provide new structural construction as required to suit.
- Demolish portions of existing main floor for new floor glazing into basement floor level. Flooring glazing to be 2 layers ¾" clear laminated structural glass.
- Demolish existing dumb waiter system complete with block shaft wall construction. Infill void within floor construction with concrete to match existing.
- Demolish existing public washroom and janitor room adjacent to main entry vestibule and construct new tutorial room complete with glazed borrowed lighting.
- Construct new tutorial room complete with glazed borrowed lighting within West library space.
- Construct new universal and public washrooms c/w all fixtures and finishes. Provide barrier free door operator into universal washroom.
- Construct new partition around existing West exit stair. Provide new rubber flooring, painted steel guard and handrails and cage around existing ladder to roof access hatch.
- Provide new reception desk and built in millwork within staff work room.
- Provide glazed guardrail system between children's area and main reception area.

Basement Floor Level

- Demolish existing dumb waiter system complete with block shaft wall construction.
- Cut openings through existing exterior concrete wall and provide new glazing system and exit door out of children's program room.
- Cut opening through existing concrete wall and provide new double doors into display area and children's program room.
- Construct new partitions and glazed wall system around program room.
- Construct partitions for new public washrooms c/w all fixtures and finishes.
- Construct partitions for new staff W/C and staff room c/w all fixture, millwork and finishes.

Mezzanine Floor Level

- Demolish existing dumb waiter system complete with block shaft wall construction. Infill void within floor construction with concrete to match existing. Patch existing construction to remain.
- Demolish all existing wood millwork.
- Construct new barrier free ramp from East mezzanine area to South mezzanine area c/w handrails, rubber flooring and detectable warning strips at top and bottom of stairs and ramp.

Provide Alternate Pricing for the following:

1. **Refinish existing wood roof structure:** Sand, prep and re-finish existing Glulam roof beams and wood decking throughout existing building.

2. **Exterior wall insulation and air barrier upgrade:** Remove all existing interior GWB along the inside face of the exterior walls. Provide self-adhesive membrane along floor-wall and roof-wall interfaces. Construct new 3 5/8" steel stud wall 1" away from existing wall construction and provide 3" of closed-cell urethane foam insulation over entire cavity. Provide 5/8" 'Type X' gwb on interior face of new steel studs and paint finish.

3. **Sprinkler System:** Provide a completely operational sprinkler system throughout existing building. All exposed piping to be painted. Refer to Mechanical scope of work outline. (Note: Sprinklers within the building are not required for compliance with the Manitoba Building Code. Price for sprinkler installation is for information purposes)

Abbreviated Architectural Specifications

General Conditions

- Contractor to carry a 10% Contingency Allowance.
- Provide cash allowance for interior and exterior signage of $8,000.
- Cash allowance for Asbestos Abatement Inspection to be determined based on future extents of renovation work.

Division 03 Concrete

- All exterior concrete walls are to be left exposed, be free of blemishes and finished with a smooth rubbed finish.
- All exterior concrete ramp, landing and stair surfaces to be constructed with a non-slip broom finish. Provide embedded detectable warning surfaces as required.

Division 04 Masonry

Masonry Paving Units

- Standard of acceptance: Barkman "Broadway" Paving Units

Division 05 Metals

Exterior Steel Hand and Guard rails

- 1 ½" steel piping for all handrails c/w woven wire mesh infill panels, paint finish. Handrail construction as noted applies to West exit stair as well.

Division 06 Wood and Plastics

Architectural Woodwork
- AWMAC Quality Grade: Custom where applicable
- All particleboard and plywood to be urea-formaldehyde free and FSC Certified

Custom Casework
- Constructed to AWMAC standards. Plastic laminate on wood substrate construction

Division 07 Thermal and Moisture Protection

Metal Wall Panels
- Prefinished metal panels to match existing profiles

Modified Bitumen Membrane Roofing
- 5/8" Densdeck
- Vapour Retardent, self adhesive
- Insulation: R-30, rigid Polyisocyanurate
- Base Sheet: SA by IKO
- Cap Sheet: ArmourCool by IKO, white reflective

Sealants and Caulking
- All sealants used are to be low VOC products

Division 08 Openings

Hollow Metal Doors and Frames
- Commercial grade steel primed ready for paint finish
- Exterior metal doors to be insulated, R-10

Aluminum Curtain Wall
- Standard of acceptance: Series 7500 wall system, as manufactured by Kawneer Company Canada Ltd.
- 25% of windows to include operable awning function c/w screen cover

Finish Hardware
- All hardware to be heavy duty institutional c/w lever handles
- Allow for a total of five (5) Barrier Free Door Operators
- Card security access for select control points, ie. doors, within new facility. Approximately 20%

Glazing
- Windows: Triple glazed, exterior pane to be solarbronze, cavity to be argon filled, middle pane to have Solarban 70XL coating on clear glass, interior pane to be clear glass by PPG. All glass to be tempered.
- Exterior Doors: Hermetically Sealed Dual Glazed Units, Tempered Glass
- Interior: Tempered Glass

Wood Doors
- Flush commercial grade. Standard of acceptance: 7600-ME series, exposed LVL core with uniform solid white Maple edging, as manufactured by Baillargeon Wood Door Manufacturer. All doors are to be 39" wide.
- All wood doors are to be factory finished

Division 09 Finishes

Gypsum Wallboard
- All GWB to be 15/8" 'type x', uno

Acoustical Ceilings and Suspension Systems
- White, non-directional fissured, 2' x 4' (30%), 2' x 2' (70%)
    - Main Floor Level: staff workroom, branch head office, washrooms (scrubbable)
    - Basement Floor Level: all areas except for electrical, mechanical and janitor

(scrubbable within all washrooms)

Resilient Sheet Flooring

- 1/8" thick homogenous vinyl c/w self base. Standard of acceptance: "Optima" by Johnsonite, standard range of colours.
    - Main Floor Level: staff workroom, staff entrance, vestibules
    - Basement Floor Level: staff room, puppet storage, display/open space, program room, program storage
- 1/8" thick Slip Resistant vinyl c/w self base. Standard of acceptance: "Altro Maxis" by Altro Floors, standard range of colours. (All washrooms)

Resilient Rubber Flooring

- 1/8" thick c/w one piece stair / riser tread combo. Standard of acceptance: Roppe "Hammered", standard range of colours. (West exit stair)

Carpeting

- Commercial Grade modular carpet tile c/w 4" rubber base: Standard of acceptance: InterfaceFLOR carpet tile, 20 oz. "cubic" series, standard range of colours
    - Mezzanine Floor Level: Entire mezzanine
    - Main Floor Level: Entire floor area with exception of staff workroom, washrooms, vestibules, west exit stair
    - Basement Floor Level: childrens program, common area

Painting

- To be selected from standard range of manufacturers, low VOC content
- Paint shall be from manufacturers number one product line
- All surfaces to receive paint finish.

Division 10 Specialties

Lockers

- S.M.L. Deluxe, Double Tier with one shelf each c/w sloped tops by Shanahan's Manufacturing (Staff room)

Miscellaneous Specialties

- Mirrors, grab bars, toilet paper holders, soap dispensers, toilet partitions, sanitary napkin dispenser and disposal

Corner Guards

- #304 Stainless Steel, surface mounted with non-toxic adhesive with 1/8" radius corner.

epp siepman engineering inc.
mechanical & electrical engineers

303-100 Osborne St. South
Winnipeg MB R3L 1Y5
p: 204.453.1080 f: 204.453.1335
www.eppsiepman.com

MECHANICAL & ELECTRICAL OUTLINE SPECIFICATION

St. Vital Library Renovation

The following outline specification is based on a schematic design and intended for preliminary cost projections only.

I. Basis of design:

1. Plan drawings by MCM Architects dated August 21, 2014.
2. Generally this scope of work will include the renovations of mechanical and electrical systems in the existing St. Vital Library Building to suit renovation requirements.
3. The Project design minimums are to be base around, but not restricted, to the following:
   a) Manitoba Hydro Powersmart commercial building standard
   b) Manitoba Building Codes
   c) CSA C22.1: Canadian Electrical Code (CEC)
   d) City of Winnipeg Universal Accessibility standards.
   e) Applicable local code(s)

II. Mechanical

A. General

1. Unless otherwise noted, the terms “install” or “provide” shall include the complete supply and installation of the items noted including all equipment, materials and commissioning necessary for a fully functional system.
2. Refer to architectural drawings for room layouts, general areas, and quantities for take-offs.
3. All work and materials shall meet or exceed the minimum requirements of Manitoba Hydro Powersmart.
4. Include all air balancing, water balancing, fire damper inspection, piping pressure testing and equipment commissioning.
5. Equipment capacities given are preliminary and subject to final design.
6. Refer to architectural plans for quantities of plumbing lab & shop rough-ins (DCW/DHW, DWV, gas).

B. Site Services

1. Site services are existing to the building
2. Remove and replace existing incoming domestic water service. Pipe size shall be 50mm (2”).
3. Incoming sanitary sewer line shall remain.

4. Outside services for water piping shall be PVC Class 150, with ring gasket joints, in accordance with AWWA C900 specifications. All materials and methods shall meet the City of Winnipeg specifications.

5. Separate price (include with Fire Protection separate price):
   a) Provide a 150mm combined fire and water service to the building.

C. Plumbing

1. Materials:
   a) Interior Drain and Vent Piping Above Ground
      (1) Up to 62 mm (2½") diameter - Type DWV copper tube with cast solder fittings and joints, drainage pattern, or 50 mm (2") Bibby-St. Croix class 4000 cast iron M.J.
      (2) 75 mm (3") diameter and over – Bibby-St. Croix class 4000 cast iron mechanical joint soil pipe and fittings with stainless steel M.J. clamps as required to meet latest CSA B70 specifications in sizes up to and including 250 mm (10”). Bibby-St. Croix class 4000 hub and spigot soil pipe and fittings in 300 mm (12”) and 375 mm (15”) sizes
   b) Interior Drain and Vent Piping Below Ground (PVC):
      (1) PVC drain, waste and vent pipe and fittings and shall be certified to CSA B181.2.
   c) Interior Water Piping (Cold, Hot and Recirculating) (DCW, DHW, DHR)
      (1) Type “L” hard temper copper tube
         (a) Up to 50 mm (2") diameter with wrought or cast solder fittings and joints.
         (b) Over 50 mm (2") diameter with silver braze fittings
   d) Insulation to be fiberglass Paper-free ASJ pipe insulation and of the following thickness throughout the new construction and work to be completed in the existing building:
      (1) Domestic cold water up to 50mm (2”) – minimum 25mm (1”) thick, with jacket.
      (2) Domestic cold water greater than 50mm (2”) – minimum 38mm (1½ “) thick, with jacket.
      (3) Domestic hot water and recirculation lines up to 50mm (2”) – minimum 25mm (1”) thick, with jacket
      (4) Vent lines insulated a minimum 3m (10 feet) from penetration of envelope – 50mm (2”) thick insulation, jacket required where exposed.

2. DCW piping sized for flush-valve fixtures. Thermally insulate all DCW and recirculating portions of DHW piping, except for tempered DHW loop (eg. to eyewash stations).

3. New electric hot water tank, HWT-1, standard of acceptance Rheem Model EG85-C-12, 85 gal. capacity, 12kW electric heating coil, Recovery capacity of 50 gph @ 100°F temperature rise.
4. External roof drainage is existing to remain
5. New washroom fixtures for men's women's washrooms. Quantities as indicated on the Architectural plans.
6. Water closets shall be electronic flush-valve, hard-wired, elongated bowl, 4.8 lpf.
7. Water closets for barrier-free washrooms to be electronic flush-valve, hard-wired,16.5" high elongated bowl, 4.8 lpf.
8. Urinals to be wall-hung, china, electronic flush-valve, hard-wired.
9. Lavatories to be counter-mount, vitreous china, c/w electronic faucets hard-wired to transformer, low-flow aerators.
10. New molded-stone mop sinks for janitor rooms with faucet and accessories
11. Floor drains for all washrooms (open strainer), & mechanical rooms (funnel-type). Floor drains in public areas such as washrooms to be installed with trap primers.
12. Allow for five exterior wall hydrants, freeze-protected, c/w brass lock box.
13. Recirculation pumps and piping to serve each tempered water system, c/w timer controls
14. Isolation valves shall be provided as follows:
    a) At water main,
    b) Base of each riser,
    c) At each fixture group,
    d) At every piece of equipment.
15. Water hammer arrestors to be provided at each fixture group.
16. All barrier-free lavatories to have hot and cold water supplies insulated.
17. Thermostatic mixing valve to temper water for the eye-wash station. Allow for one for each mechanical room in the basement.
18. Provide Elkay drinking fountain with bottle filler. (Elkay EZH20)

D. Fire Protection

1. Separate Price:
    a) Scope:
        (1) Provide a main floor and mezzanine double interlocked pre-action sprinkler system to meet the coverage requirements of NFPA 13 for an ordinary hazard designation, 650 m^2 (7,000 s.f.). Average ceiling height of 14' floor to underside of deck, unobstructed roof truss construction. Limited dropped ceilings.
        (2) Provide a basement wet sprinkler system to meet the coverage requirements of NFPA 13 for a light hazard

designation, 650 m^2 (7,000 s.f.) Average ceiling height of 9' floor to underside of deck, with dropped ceilings.

b) Materials:

(1) Steel pipe (manufactured in Canada or the USA) to be standard black steel type in accordance with the requirements of ASTM A53 - Welded and Seamless Steel Pipe:

(a) Threaded pipe shall be Schedule 40 for pipe 150mm (6") and smaller, and Schedule 30 for pipe 200mm (8") and larger.

(b) For approved roll-groove piping systems, pipe thickness shall be Schedule 10 for piping up to 125 mm (5"), 3.4 mm (0.134") thick for 150 mm (6") pipe, and 4.78 mm (0.188") thick for 200 mm (8") and 250 mm (10"), in accordance with ASTM A53.

(2) Plastic piping systems are not permitted.

(3) All pipe installed so as to be inaccessible shall be joined be welded fittings.

(4) All sizes up to 50 mm (2") shall be joined by threaded connections or with approved welding fittings (ASTM A53).

(5) All pipe exposed to space shall be joined by threaded connections.

(6) All sizes 63 mm (2 ½") and up shall be a roll grooved piping system with fittings to NFPA/LILC/FM standards

c) Sprinkler valving shall be located in basement in the room next to the staff washroom.

d) Single fire department connection at entrance.

e) Portable fire extinguishers by Owner.

f) Fire protection contractor shall be responsible for all hydraulic calculation, pipe sizing and shall provide professional engineers seal.

E. Hydronic

1. Materials:

a) Hot Water Heating Piping shall be:

(1) Sizes 13 mm (½") to 50 mm (2") inclusive shall be schedule 40 black, stretch reduced, continuous weld, steel pipe to A.S.T.M. Specification A-53 with 150 lb. malleable screwed fittings and 150 lb. malleable iron ground-joint unions, or Type "L" hard temper copper tube.

(2) Sizes 63 mm (2½") to 150 mm (6") inclusive shall be schedule 40 black, electric resistance weld, open hearth, steel pipe to A.S.T.M. Specification A-53 with 150 lb. welding fittings and 150 lb. forged steel welding flanges, or Type "L" hard temper copper tube with Emco smoothbore silver brass fittings.

b) Hot Water Heating Pipe Insulation shall be:

(1) Insulation - Insulate all heating water, steam and condensate lines with Fibreglass 455°C (850°F). Pipe insulation 80 kg per cubic meter (5 lb. per cubic foot) density. Pipe insulation to be held in place with flare type staples.

Iron Pipe Size	Insulation Thickness
13 mm to 50 mm (½" to 2")	38 mm (1½")
63 mm to 350 mm (2½" to 14")	50 mm (2")

Copper Tubing	Insulation Thickness
10 mm to 50 mm (3/8" to 2")	38 mm (1½")
63 mm to 100 mm (2½" to 4")	50 mm (2")

c) Refrigerant Piping

(1) Shall be Type “L”, hard drawn, degreased, scaled-at-the-mill copper tubing, cleaned sealed at the mill. Pre-charged refrigerant lines are not to be used.

2. Refrigerant pipe insulation shall be flexible foamed plastic closed cell pipe insulation, with UV resistant PVC jacketing. Install aluminum or jacketing on all exterior insulated refrigeration piping.

3. Balancing valves shall automatic flow control type (such as Griswold) and not manually adjustable valves that can be easily reset during maintenance or repair procedures.

4. Provide new fire stopping between each floor and through walls as indicated by architectural.

5. All hydronic systems shall be fully balanced by an ABB certified balancing company.

6. The mechanical contractor shall include the costs associated with all commissioning of new and renovated equipment and systems.

7. Existing hydronic distribution to remain. Provide new shutoff valves, control valves and circuit setters to each branch zone. Total of 17 zones.

8. Provide two (2) new inline pumps for the secondary heating loop system. Pumps shall operate duty standby 4 L/s (65 GPM), 1.0 HP. B&G Ecocirc XL 65-130 or equivalent.

9. Provide a side stream filter: Pal LMO-10 ¾” filter housing, STS ¾” Filtermate flow indicator, provide (40) 10 micron filter cartridges.

10. Provide a complete chemical flush, cleaning and chemical treatment to the system.

11. Provide a new inline air separator (Bell and Gossett IAS)

12. Replace existing wall fin, radiators and unit ventilators with new wall fin and unit ventilators to meet the new space layout. New wall fin shall be copper tube with aluminum fins with architectural pedestal cover and end caps, Rittling Model ETL or equal. Basement floor shall replace the existing units and main floor shall span across each window. Mezzanine floor shall have wall fin spanning across each set of glazing.
    a) Basement shall have 14x, six foot lengths of wall fin.
    b) Main Floor shall have 25x, six foot lengths of wall fin.
    c) Mezzanine shall have 12x, six foot lengths of wall fin.
13. Separate Price – boiler replacement:
    a) Dismantle and remove existing boilers and related components and venting.
    b) Provide a two (2) new condensing boilers and vent system: Estimated size PK Mach CM399 (399,000 BTU/H)
    c) Provide new ecocirc boiler pump B&G Ecocirc XL 20-35 or equivalent.
14. All water loops to have expansion tanks, air-dirt separators, and feed lines.

F. HVAC

1. Materials:
    a) Galvanized Steel Ducts: ASTM A653 galvanized steel sheet, lock-forming quality, having G60 zinc coating of to ASTM A90.
    b) Sealant shall be Duro-Dyne - Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.
    c) Hanger Rod: ASTM A36; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.
2. Fabricate, support and installation shall be to SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Unless otherwise indicated fabrication shall conform to standards for duct pressure class rating of +2" w.g. Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated.
3. Demolish existing ventilation systems and cooling systems completely within basement.
4. Provide new 90% heat recovery unit in basement mechanical room. Tempeff RGSP 2700 or equal.
5. Provide up-flow air handing unit for the basement. Unit shall be a Daikin Applied Destiny unit, 3800 CFM unit 5 HP with hot water heating coil DX cooling coil, and Merv 13 filters.
6. Provide up-flow air handing unit for the Main floor library. Unit shall be a Daikin Applied Destiny unit, 3800 CFM unit 5 HP with hot water heating coil DX cooling coil, Merv 13 filters.

7. Provide two new (2) condensing units on the roof. Units shall be Daikin applied RCS 07F or equal, 7.5 tons capacity. Include all roof supports, pitch pockets, and related work.
8. Provide new 7000 CFM return fan within mechanical room
9. Provide a packaged gas fired rooftop unit for the west side of the Library. Unit shall be a Daikin applied MPS 007 or equal, c/w mixing box, 7.5 tons capacity. Include all roof curbing, pitch pockets, gas supply, and related work.
10. Provide new overhead supply and return duct distribution for basement and main floor library.
11. Provide new exhaust duct distribution for washroom, electrical room and mechanical room exhaust and tie back to the HRV.
12. Provide new fire stopping and fire dampers between each floor and through walls as indicated by architectural on air handler supply and return ducting.
13. Provide new exhaust system for photocopier requirements on the basement and 100 level. Connect to the HRV exhaust duct system.
14. All new and revised HVAC systems shall be fully balanced by an AABC certified balancing company.
15. The mechanical contractor shall include the costs associated with all commissioning of new and renovated equipment and systems.
16. Provide a new 300 CFM crawlspace exhaust fan and duct. Operation shall be controlled by humidity and temperature.

G. Controls

1. Provide new Building automation system. Controls contractor to allow for the supply and installation of all controls wiring, interlocks, gas sensors, and control devices not supplied by the mechanical trade. All systems are to connect to the central DDC system and meet City of Winnipeg requirements
2. Provide new DDC controls at all new major equipment (fans, pumps, control valves, etc).
3. Provide new DDC thermostats/controls at baseboards and zones (15 zones)
4. Provide four (4) new CO_2 sensors on main floor and second floor to control ventilation.

III. Electrical

A. General Electrical

1. Unless otherwise noted, the terms “install” or “provide” shall include the complete supply and installation of the items noted including all equipment, materials and commissioning necessary for a fully functional system.
2. Refer to architectural drawings for room layouts, general areas, and quantities for take-offs.
3. Include all costs associated with electrical permits, fire alarm verification, systems commissioning and systems training.
4. The work as herein described is preliminary and subject to final design.

B. Electrical Demolition

1. Disconnect and remove all existing electrical devices, equipment, and wiring back to source where not being reused.
2. Existing wiring devices shall not be reused.
3. Disconnect and remove all existing electrical services, back to source, supplying mechanical equipment being demolished.
4. Coordinate all work requiring shut-down of existing systems that could affect existing tenants with the building owner at a time and manner suitable to them.

C. Site Services

1. The existing electrical service is currently fed overhead from a Manitoba Hydro pole located adjacent the South side of the site. The existing electrical service will be upgraded as part of a separate City of Winnipeg project and does not fall within the scope of this project.
2. Maintain existing utility communication services.
3. Provide new LED site lighting to suite new layouts. Upgrade existing building mounted lighting to new LED style.
4. Provide new IPLC receptacles for all parking lot staff stalls. Revise mounting details or covers as required to meet code.

D. Distribution

1. The existing electrical distribution resides in the basement electrical room. No changes are anticipated

E. Panelboards

1. Provide four (4) new panelboards to replace existing. Panelboards to be 120/240V, 3phase, 4wire, 225A, 60 circuit complete with breakers as required. Provide typewritten panel directories indicating updated circuiting. Provide new wire, conduit and breakers from main distribution as required.

F. Lighting

1. Provide new mid-to-high grade LED lighting in all renovation areas.
2. Retrofit existing main floor lighting to remain with dimming ballasts and daylight sensor control.
3. New lighting in Program Room shall be dimmable LED.
4. All lighting shall be Manitoba Hydro PowerSmart approved.

G. Lighting Control

1. Replace all existing lighting control devices with new.
2. Lower all existing lighting control devices to 1200mm AFF to meet City of Winnipeg Accessibility requirements.
3. Provide occupancy sensor controls for lighting in all basement rooms.
4. Provide daylight harvesting controls for all main floor lighting.
5. Switching and occupancy sensors shall be line voltage.

H. Wiring

1. Minimum wire size shall be #12 AWG.
2. All wiring on exterior walls shall be run in conduit, or metal raceway/wiremold to avoid compromising the existing building envelope.
3. All wiring in ceiling spaces shall be run in conduit, with AC90 drops to individual devices as required.

I. Devices

1. Replace all existing receptacle devices to remain in place. All receptacles in public areas to be tamper-proof.
2. Provide receptacles to suit layout requirements. Relocate existing circuits and provide new from existing panelboards where required.
3. Wiring devices shall be “standard” style, commercial specification grade complete with stainless steel coverplates. Color of devices to be confirmed by architect.
4. Relocate existing and provide new receptacles to suit new layouts.
5. Wire and connect door operators.

J. Fire Alarm

1. Provide new addressable fire alarm system throughout complete with new control panel, annunciator at the front door, detection, manual pullstations, visual/audible notification devices, and wiring throughout.
2. Provide verification of system for entire system.
3. Demolish existing FA system.

K. Exit & Emergency Lighting

1. Emergency and egress lighting shall be provided throughout all means of egress and service spaces to suit code requirements.
2. Provide new emergency lighting through complete with battery banks, and LED remote double heads. Demolish existing emergency lighting. Utilize existing wiring where possible. Provide additional lighting to suit code requirements. Remote heads shall be provided in the following areas to suit new layouts:
   a) Washrooms
   b) Staff Room
   c) Circulation Desk
   d) Corridors & Public Areas
   e) Program Areas
   f) Stairwells
   g) Electrical/Mechanical Rooms
3. Exit lighting shall be extruded aluminum and pictogram style equal to Lumacell LA series. All signs shall be universal mount. Exit signs shall be provided to suit new layout egress requirements.

L. Communication Systems

1. Existing communications relay rack shall remain.
2. Replace all existing communication with new CAT6 cabling.
3. Provide additional communication outlets as required for new offices and computer stations.
4. Each communications outlet shall be complete with two (2) CAT6 cables back to the new rack. All cabling shall be supplied and installed by the electrical contractor including testing and termination.
5. Provide new conduit and J-hook pathway for all communication cabling. J-Hooks shall be utilized for individual branch wiring. Conduit shall be used for all non-accessible ceiling spaces, and non-cavity walls.

M. Security/Intrusion Alarm System

1. Main existing intrusion alarm system. Tie existing system into City of Winnipeg Pegasys (BMS) system.

2. Maintain existing Panic Alarm system. Relocate and provide new panic buttons to suit new layouts.

N. Door/Access Control System

1. Provide rough-in for a new door/access control system. Minimum access points to include:
   a) Entrance Doors
   b) Electrical Room
   c) Program Room Storage
   d) Branch Head Office
   e) Staff Room
2. The door/access control system shall be integrated with City of Winnipeg Pegasys system by separate contract.

O. CCTV System

1. Provide a new CCTV system complete with interior and exterior cameras including all required software licenses and DVR.
2. The DVR shall be complete with minimum 1-month storage and the unit shall be rack mountable within the communications rack as described above.
3. Provide a rack mounted LCD monitor complete with keyboard and mouse for viewing of cameras, and utilizing CCTV video software.

P. Paging System

1. Existing single zone paging system shall be upgraded to accommodate new architectural layouts. Relocate head end equipment to staff room.
2. Relocate existing ceiling mounted speakers where such can be reused.
3. Provide all new wiring and speakers where required to suit architectural revisions.

Q. Buzzer System

1. Demolish existing buzzer system.
2. Provide new buzzer system for staff room assistance.

R. Miscellaneous Equipment

1. Wire and connect all owner supplied equipment.
2. Wire and connect ceiling projector in Program Room.
3. Wire and connect barrier free door operators complete with all associated wiring and controls, including, but not limited to:
   a) Tutorial Room
   b) Staff Room

c) Branch Head Office
d) Public Washrooms

4. Maintain power for existing library patron counter device & open/closed signage.
5. Maintain and relocate existing transit radio system as required.
6. Provide new “quiet style” hand-dryers for all public washrooms.

S. Mechanical Equipment

1. Wire and connect all mechanical equipment requiring electrical connections as indicated by mechanical.
2. Refer to mechanical outline for further requirements under this heading.

- End of Document –

Class ‘C’ Cost Estimate

Prepared For:

MCM Architecture Inc.
141 St. Anne's Road, Winnipeg
Manitoba Canada
R7A 3X1

ST. VITAL LIBRARY BUILDING
RENOVATIONS and UPGRADING
Winnipeg, Manitoba

CLASS "C" CONSTRUCTION COST ESTIMATE

Prepared By:

Sever L Construction Cost Consultants Inc.
1 - 1140 Waverley Street
Manitoba - Canada , R3T-0P4
Phone: 204 229-9240
Email : severlupu@gmail.com
Fax 204.925.1155

September 25 2014

FILE NO. 12312

ST.VITAL LIBRARY BUILDING
RENOVATIONS and UPGRADING **September 2014**
Winnipeg, Manitoba

MAIN SUMMARY - CLASS "C" ESTIMATE

		$
1.	**TOTAL COST (summary from Technical Criteria)**	**1,087,600**
a.	**- Mechanical (see Appendix for Criteria)**	1,130,100
b.	**- Electrical**	426,900
		$2,644,600
2.	G.C's Overhead & Fee (@ 10%)	264,460
	TOTAL NET CONSTRUCTION COST	**$2,909,060**
3.	Design Contingency (@ 15%)	$436,359
4.	**SUB-TOTAL**	**$3,345,419**
5.	**Existing Conditions Contingency and Market Conditions (@ 10%)**	$334,542
6.	**SITE WORKS (including G.C.'s and Contingencies)**	$173,400
7.	**Cash Allowance (Testing, Inspection, Etc.)**	$10,000
8.	**TOTAL CONSTRUCTION COST (in Summer 2014 Current Dollars)**	**$3,863,361**
9.	**Asbestos Removal - TBD**	

SEPARATE PRICING :

A.	**Refinish existing wood roof structure**	**$50,000**
B.	**Exterior wall insulation and air barrier Upgrade:** **- Remove all existing interior GWB alomg the inside face of the exterior walls.** **- self adhesive membrane, 3-5/8" steel studs, 3" closed-cell urethane foam insulation over entire cavity** **- 5/8" TYPE X GWB on interior face of new steel studs and paint finish**	**$125,000**

INTRODUCTORY NOTES

SCOPE OF PROJECT	Project Comprises : Renovations and Upgrading of: **St.Vital Library Building (TOTAL GFA : 15,500 sq.ft.)** **- Basement : 6,725 sq.ft** **- Main Floor: 6,725 sq.ft.** **- Mezzanine: 2,050 sq.ft.** **Renovations & Upgrading** **Site Works**
CONSTRUCTION COST	**The cost in Summer 2014 Current Dollars**
DESIGN INFORMATION	This cost estimate was based on pre-tender stage working drawings and specifications prepared by **MCM Architects Inc.** and their Consultants
METHODOLOGY	Elemental quantity take-offs were prepared and priced using current market rates.
CONTINGENCIES	Construction Contingency and Market Conditions are Included
CONTRACT	It is assumed the project will be tendered in its entirety on a **"Stipulated Sum"** basis
TAXES	Provincial Sales Taxes are included. GST is excluded
MARKET CONDITIONS	**The market conditions presently are competitive and we are witnessing a growth in construction activity across Manitoba.**
TENDERING PROCESS	**It is assumed the project will be tendered in its entirety on a "Stipulated Sum" basis.** **Should any other tendering systems be used (i.e. Construction Management , Etc.) then the estimate will require adjusting.**

Sever Lupu , C.E.C. , Construction Cost Consultants Inc.

INTRODUCTORY NOTES (Cont'd)

EXCLUSIONS **The following items have been excluded from this estimate:**

- Consultant/Management fees and disbursements
- Financing, legal & administration costs
- Furniture, Furnishings, Equipment
- ASBESTOS or Hazardous Materials
- Surveys and commissioning
- LEED Requirements
- Changes/Addenda subsequent to the date of this report
- Escalation beyond Summer 2014
- GST (PST included)
- **VALUE ENGINEERING**

Value engineering is a systematic method to improve the "value" of cost / budget of the project by using an examination of function

In the United States, value engineering is specifically spelled out in Public Law 104-106 , which states "Each executive agency shall establish and maintain cost-effective value engineering procedures and processes".

Value engineering uses rational logic (a unique "How" - "Why" questioning technique) and the analysis of function to identify relationship that increase value.

Value engineering (VE) is also referred to as or "Value Management" or "Value Methodology" (VM) and "Value Analysis" (VA).

The Origins of Value Enginnering

- Value engineering began at General Electric Co. during World War II. Because of the war, there were shortages of skilled labour, raw materials, and componenet parts.
G.E. looked for acceptable substitutes. It was noticed that theses substitutions often reduced costs, improved the products or both. What started as an accident of necessity was turned into a systematic process.
This technique was called " Value Analysis"

INTRODUCTORY NOTES (Cont'd)

ESTIMATE CLASSES : AN EXPLANATION

CLASS "D" ESTIMATE"
(Conceptual Stage)

Based upon a statement of requirements, and an outline potential solutions, this estimate is strictly an indication (rough order of magnitude) of the final project cost, and should be sufficient to provide an indication of cost and allow for making all the options being considered.

CLASS "C" ESTIMATE"
(Schematic Stage)

Based on a full description of the preferred option, construction/design experience, and market conditions, this estimate should be sufficient for making the correct investment decision, and obtaining preliminary project approval

CLASS "B" ESTIMATE"
(Design Development Stage

Based on design/preliminary drawings and outline specifications for the project, which include the design of all major systems and sub-systems, as well as the results of all site/installation investigations, this estimate should provide for the establishment of realistic cost objectives and be sufficient to obtain effective project approval

CLASS "A" ESTIMATE"
(Pre-Tender Stage)

Based on complete working drawings and specifications, and prepared prior to calling competitive tenders, this estimate should be sufficient to allow a detailed reconciliation/negotiation with any contractors proffered tender

TECHNICAL CRITERIA

		QUANTITY	UNIT	RATE	TOTAL
	GENERAL				
1.	Remove existing partitions		Sum		23,400
2.	Construct all new interior partitions comprising 5/8" painted GWB on 6" steel studs framing at 16" o.c. complete with sound attenuation batt insulation full cavity		Sum		34,500
3.	Remove all existing interior doors and frames and		Sum		800
4.	New Doors	23	Each	2,000.00	46,000
5.	Remove all existing flooring and provide new flooring throughout	15500	SQ.FT.	9.50	147,250
6.	Remove all existing ceiling tiles complete with grid system and provide new ceilings where are identified		Sum		93,000
7.	Remove all existing built-in millwork and reception desk		Sum		1,500
8.	Remove all existing interior stair handrails and provide new wood handrails on both sides of all the stairs		Sum		13,900
9.	Patch and make good all existing surfaces to remain and all affected surfaces due to construction. Also provide new paint finish		Allowance		50,000
10.	Provide 4'-0" high stainless steel corner guards for all exposed outside GWB corners		Sum		2,000
11.	Asbestos has been identified on the following : - pipe fitting insulation - floor tile within the basement - stucco ceiling in Electrical Room (required Pinchin Report)				EXCLUDED
					C/F

		QUANTITY	UNIT	RATE	TOTAL
	ENVELOPE				
12.	Remove existing rusted metal panels and provide new prefinished metal flashing, fascias and panels around entire library building		Sum		175,000
13.	Repair damaged areas of caulking around entire building		Sum		10,000
14.	Remove existing roofing and parapet construction. Construct new R-30 roofing and parapets as required to accommodate new roofing		Sum		135,000
15.	Modify existing roof access hatch to accommodate new roofing material. Provide new guardrail system around existing roof hatch		Sum		8,500
16.	Remove existing skylight systems. Provide new skylights to suit existing roof openings. Construct new curbing to suit existing roof openings. Construct new curbing to suit additional thickness of insulation		Sum		15,500
17.	Remove all existing windows systems and provide new aluminum curtain wall window systems complete with triple glazing. Provide 25% OPERABLE		Sum		128,500
18.	Remove all existing exterior doors and frames systems and provide new insulated aluminum door and frames for the Main Entry and East exit and insulated painted hollow metal door and frame at West exit.		Sum		13,500
19.	Clean up existi ng crawlspace and re-grade complete with continous poly ground cover, french drain and sum pump system		Sum		21,500
					$919,850
20.	**SUB-TOTAL GENERAL and ENVELOPE**				**$919,900**

		QUANTITY	UNIT	RATE	TOTAL
	MAIN FLOOR LEVEL				
1.	Demolish existing stair construction leading up to mezzanine area above main entry vestibule		Sum		4,500
2.	Demolish portion of existing mezzanine floor above main entry vestibule and tutorial room for new glazed floor system. Provide new structural construction as required to suit		Sum		24,500
3.	Demolish portion of existing main floor glazing into basement floor level. Flooring glazing to be 2 layers 3/4" clear laminated structural glass		Sum		45,000
4.	Demolish existing dumb waiter system complete with block shaft wall construction. Infill void within floor construction with concrte to match existing (including the basement floor level and mezzanine)		Sum		18,500
5.	Demolish existing public washroom and janitor room adjacent to main entry vestibule and construct new tutorial room complete with glazed borrowed lighting		Sum		8,300
6.	Construct new tutorial room complete with glazed borrowed lighting within West library space		Sum		7,400
7.	Provide new reception desk and built in millwork within staff work room		Sum		4,000
8.	Provide glazed guardrail system between children's area and main reception area.		Sum		2,000

C/F

		QUANTITY	UNIT	RATE	TOTAL
	BASEMENT FLOOR LEVEL				
9.	Cut opening through existing exterior wall and provide new glazing system and exit door out of children's program room		Sum		5,500
10.	Cut opening through existing exterior wall and provide new double door into display area and children's program room		Sum		4,500
11.	Glazed wall systems		Sum		18,000
12.	New Millwork		Allowance		10,000
					152,200
	TOTAL				**$152,200**

		QUANTITY	UNIT	RATE	TOTAL
	BASEMENT FLOOR LEVEL				
1.	Demolish all existing millwork		Sum		500
2.	Construct new barrier free ramp from east mezzanine area to South mezzanine area complete with handrails and rubber flooring		Sum		15,000
	TOTAL				**$15,500**

ST.VITAL LIBRARY BUILDING
RENOVATIONS and UPGRADING **September 2014**
Winnipeg, Manitoba

		QUANTITY	UNIT	RATE	TOTAL
	SITE WORKS				
1.	Revise parking lot and loading layout to of the building. Remove existing and provide new asphalt paving c/w painted lines and precast concrete curb stops		Sum		15,000
2.	Excavate down to basement level, demolish existing metal and wood framed exit stairs enclosure and construct new concrete retaining wall system and tiered structure East of existing Building. Provide sod within tiered areas		Sum		26,000
3.	Construct seating areas and all walkways around building with concrete paving stones		Sum		3,800
4.	Demolish existing concrete stairs, landing and ramps.Construct new exterior ramps, landings, landings and ramp at Main Entry , West exit and east exit		Sum		35,000
5.	Provide new sod, landscaping and planting		Allowance		10,000
6.	Provide 8 painted steel bike racks adjacent to Main Entrance		Sum		2,000
7.	Scrap, patch and re-paint existing exposed cement foundation around entire building		Sum		3,000
8.	Remove and provide new painted steel rain water leaders to match existing		Sum		3,600
9.	Provide for a minimum of 5 Exterior light standards around existing building		Sum		35,000
					133,400
10.	G.C.'s Overhead and fees and Contingemcies				**40,000**
	TOTAL SITE WORKS				**$173,400**

ST.VITAL LIBRARY BUILDING
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		QUANTITY	UNIT	RATE	TOTAL
	ELECTRICAL INSTALLATIONS				
1.	Demolitions		Sum		7,000
2.	Site services		Sum		37,000
3.	Panel boards		Sum		10,800
4.	Lighting		Sum		156,300
5.	Devices		Sum		32,900
6.	Fire alarm		Sum		30,100
7.	E/E Lighting		Sum		18,400
8.	Communications systems		Sum		11,900
9.	Security sysstems		Sum		14,600
10.	Door access systems		Sum		31,200
11.	CCTV systems		Sum		42,700
12.	Paging systems		Sum		8,400
13.	Buzzer systems		Sum		1,100
14.	Miscellaneous Equipment		Sum		9,700
15.	Mechanical		Sum		14,800
	TOTAL				**$426,900**

Cost Estimate Form

ALLIANCE
Engineering Services Inc.

Client:	SL Cost Consulting Services
Project:	St. Vital library Class C
Project No.:	SL-14-N063-1
Worksheet:	Summary
Location:	Winnipeg, Manitoba

Rev	Date	By
A	17-Sep-14	AS

Sept. 2014

	St Vital Library	QTY	UNIT	RATE	TOTAL LABOUR	TOTAL MATERIALS	TOTAL EQUIP.	TOTAL COST
1	**Fire Supression** >preaction & wet sprinkler system		SUM		$23,258	$19,266	$27,788	$70,312
2	**Thermal Insulation** >ductwork, hydronic & domestic piping		SUM		$46,516	$70,395		$116,911
3	**Plumbing Fixture(s)** >wc's, lavs, sinks, mop sink, water hammers >fd's, hb's, df, ew's, temp contr. Valves		SUM		$16,131		$47,520	$63,651
4	**Domestic Water Equipment** >bfp's, hw heaters		SUM		$1,313	$741	$7,929	$9,983
5	**Domestic Water Piping** >dcw, dhw, dhwr		SUM		$8,065	$18,818		$26,883
6	**Sanitary Piping** >DWV, STS		SUM		$16,881	$18,392	$6,891	$42,164
8	**HVAC Equipment** >ac's, cu's, f's, ef's, boilers, pumps, radiant baseboards		SUM		$30,761	$3,260	$170,875	$204,896
9	**HVAC Ducting** >ductwork, grilles, louvers, bd, md, fd		SUM		$83,467	$70,543	$9,603	$163,613
10	**HVAC Piping** >hydronic heating pipe & fittings, valves, refrigerant piping, gas piping		SUM		$48,386	$27,989	$741	$77,116
11	**EMCS** >new PLC, control thermostats, control valves, >control dampers, wiring, co sensors		SUM		$36,106	$36,272	$40,755	$113,133
12	**Misc** >TAB, mob/demob, penetrations, fire stopping, pipe cleaning & testing, wall coring, hkpd's > Mechanical Identification, supports, fire stops		SUM		$67,524	$64,763		$132,287
13	**Demolition**		SUM		$15,005	$2,964		$17,969
14	**Site Services Installation** >combined water/fp main		SUM		$19,027		$19,014	$38,041
15	**RST**		8%			$26,672.25	$26,489.27	$53,162
	TOTAL MECHANICAL **(GST NOT INCLUDED)**				**$412,439**	**$360,075**	**$357,605**	$1,130,120

Notes
1. Estimate based on arch. sketches and mech 0utline specifications received
2. Estimate based on regular 8 hour shift
3. Asbestos abatment not included

Conclusion

Conclusion

The St.Vital Library has served the surrounding community well over the past 51 years since it was first constructed. Throughout its lifetime it has experienced minor alterations and various upgrades to interior finishes.

In general the building appears to be in good condition, however, as to be expected and typical for a public use building, finishes, both interior and exterior, as well as building components are showing signs of wear and tear as well as deterioration. As the building continues to age, ongoing maintenance will continue to rise for existing finishes and systems that near the end of their service life.

The building condition assessment has identified concerns within the existing building that will require attention either immediately or at some time in the future. These range from minor asethetic concerns, regarding the dated appearance of some finishes, to mechanical and electrical systems falling short of the new energy efficient technologies of today, to accessibility and lifesafety concerns necessary to ensure safety and equality for all users. Recommendations have been provided to address and correct all identified deficiencies and concerns.

In addition a functional review and proposed schematic layout was developed in partnership with members of the City of Winnipeg and the Library Services Division. It provides a glimpse into possibilities for alterations to the St.Vital Library to addressed the needs of the growing and ever changing public; and upgrades, both required and elective to ensure a healty and safe environment.

A detailed scope of work and abbreviated specifications were developed taking into consideration both the new proposed functional layout and findings from the building condition assessment, both recommended and required, so as to generate a probable cost estimate for the project. The provided costing, in Fall 2014 dollars, appears to be reasonable for the extent of work identified.

Should the City of Winnipeg not wish to procced at this time with the full scope of work surrounding the proposed functional schematic layout, at minimum, the required fire and life safety concerns identified within the building condition assessment should be addressed.

At the time of this report, the City of Winnipeg has undertaken, with their own forces and outside of the scope of work of this report, the task of incorporating universal accessibility to all interior floor levels within the library, by providing an elevator system within the buildings interior. Construction has not commenced prior to submission of this report, however, the proposed functional schematic layout and scope of work was developed under the assumption it would progress as per documents received from the City of Winnipeg.