APPENDIX A – CORNISH LIBRARY REFURBISHMENT STUDY

Winnipeg

Embrace the Spirit • Vivez l'esprit

Facility Refurbishment Study

Accessibilty, Life Safety & Functional Layout

Cornish Library

20 West Gate

December 21, 2012

mcm architects inc.

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CONSULTING STRUCTURAL ENGINEERS

MCW / AGE

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Abstract

Accessibility and universal design were unheard of concepts back in 1915 when the existing Cornish library was constructed. Even the building codes at the time of construction were a far cry from the standards required in todays practice to provide a safe and universally accessible facility to all its occupant users. An architectural and engineering analysis of the current existing building will identify areas failing to meet the standards of today from both a universal access and life safety standpoint.

From this analysis, further investigation and the development of two potentially viable options, an interior lift system with an external ramp and a full elevator addition, will be presented
as a means for providing safe and universal access into and to all levels and areas of the existing library. An assessment of the resulting impact the proposed accessible development will have on the existing floor area, space programming and circulation patterns. Probable budget costing for each of the two options will assist the City of Winnipeg Library Services in determining which option most represents a potential for pursuing accessibility and universal access within the existing Cornish library.

Introduction

MCM Architects were retained by the City of Winnipeg to carry out a facility refurbishment study for the existing Cornish library to address and target specific concerns relative to current building codes, standards and practices for accessibility, universal access and life safety.

When the Cornish library was constructed in 1915 the codes and standards did not take into account, nor were they even present, to address the needs of accessibility and universal access. With the focus of today on inclusion rather than exclusion, there is a tremendous need to search out and implement solutions for accommodating universal access in all public use buildings.

The City of Winnipeg has been proactive in its approach to explore and ultimately provide universal access for all currently used and occupied buildings. MCM Architects and our team of consultants will investigate, analyze and define the existing Cornish library building with a focus on identifying areas of concern relative to accessibility, universal access and life safety with the ultimate intent of providing viable options, solutions and recommendations so as to provide a safe, convenient and accessible environment for the surrounding community and its occupant users.

This study includes schematic design options which provide accessibility and universal access into and within all areas on all levels, an analysis of the existing life safety systems and functional programming within the spaces as well as identifying upgrades required to meet todays standards, codes and practices.

Scope of Work

In order to formulate an objective analysis regarding accessibility, universal access and life safety for the existing Cornish library, MCM Architects has identified the following scope of work:

- Conduct a site visit with structural, mechanical and electrical engineers to identify existing background information relevant to the project.
- Review of the existing building in respects to the 2010 National Building Code of Canada with the 2011 Manitoba Amendments and the 2010 City of Winnipeg Accessibility Design
- Discuss with representatives from the City of Winnipeg Library Services, library staff and City of Winnipeg Heritage Services any concerns and / or ideas relative to the scope of work.
- Communicate the analysis and proposed options with schematic plans, written assessment of said plans, including structural, mechanical and electrical requirements.
- Prepare presentation materials and take part in a community consultation - public review event to obtain information from the general public and members of the Winnipeg Library Foundation and Winnipeg Public Library Board.
- Develop the scope of work necessary to further develop and ultimately construct the proposed options.
- Prepare cost estimates for the proposed options as presented within the report.

Approach

As part of our analysis MCM visited the site on February 24, 2012 and March 9, 2012 to familiarize ourselves with the existing building and gain a better understanding of the current conditions regarding accessibility, universal access and life safety.

Analysis of the existing building as well as proposed schematic design development adhered to recommendations from The City of Winnipeg Library Services, codes and standards identified within the 2010 City of Winnipeg Accessibility Design Standards and the 2010 National Building Code of Canada with the 2011 Manitoba Amendments. Where codes and standards overlapped between the two noted documents, the most stringent standard or code was followed.

Upon completion of preliminary design options MCM Architects arranged a meeting with Winnipeg Heritage to present the proposed options as a means to ensure that the historical significance of the existing Cornish library would not be compromised and to include Heritage Winnipeg in the development process. MCM Architects re-visited the site on May 16, 2012 along with structural, mechanical and electrical engineering consultants. This visit to the site was to provide the engineering consultants an opportunity to review and anaylze the current conditions of the building and to provide them with a better understanding of what the facility refurbishment study was trying to accomplish.

Working closely with MCM Architects all consultants have provided documentation relative to their specific field of expertise and these documents have informed and have been incorporated into the design options and assessments presented within this report.

Historical Building Overview

Originally constructed in 1915, Cornish library is currently designated as a historical building with a Grade 2 classification on The City of Winnipeg Heritage Conservation List. At the time of construction the existing building met the needs of the citizens of Winnipeg, however, it was never planned with accessibility and universal access as a functional programmatic component.

The existing main floor level sits roughly 7'-0" above the city sidewalk elevation with the only access to the buildings floor levels by an interior set of stairs. The existing structure includes a concrete foundation system and basement walls, load bearing masonry walls on both the interior of the basement and the main floor. The floor system of the basement is a concrete slab supported on the underlying soil. The main floor appears to be a network of one way and two way flat slabs.

With numerous required upgrades in order to comply with the current standards of today, discussions took place with the Heritage Planning branch of the City of Winnipeg to develop an understanding as to what potentially would or would not be acceptable for modifications or redevelopment to the exterior elevations and within the existing building.

In discussions with Heritage Winnipeg it was strongly emphasized by Heritage that they are very willing to work together with the City of Winnipeg and Library Services in providing universal access to the Cornish Library.

A number of options were present and all were well received with no major concerns from Heritage Winnipeg. The following guidlines were presented by Heritage Winnipeg and have been incorporated in the accessible design options presented within this report and will no doubt play an important role in any future design considerations for the library.

- Design and material selection should be sensitive to the existing character of the building.
- Modifications to interior fitments such as millwork, mouldings, details, etc. are obviously neccessary, however, care should be taken so as to limit, as much as possible, the modifications and to avoid removing any detail in its entirety from the building.
- Any new addition should play a subservient role to the existing building and be either stepped back from the existing facade or appear visually separated through use of reveals or other architectural details.
- Elements of Historical significance may be removed or modified if their removal or modification facilitates the intended accessible design.

An on-going dialogue with Heritage Winnipeg is recommended for all future phases.

Community Review - Public Open House

A public open house / community review was held at Mulvey School on Thursday July 26, 2012 to allow the community access to view the proposed accessible options for the Cornish library.

MCM Architects were in attendance to address any design related concerns and answer any questions pertaining to the proposed accessibility within the existing library.

A number of comments were received and provided by the City of Winnipeg Library Services with some of the more pertinent comments listed below:

"I think the plans are terrific. I prefer the plan with the exterior elevator given that the face of the building keeps its historical integrity."

"I like the elevator option much more than the ramp / lift.
I like the overall concept with the expanded use of the lower level.
I like the glass vestibule with sparing the tree.
Great work with planning for this wonderful old building."

"As a longtime resident of Armstrong's Point I far prefer the elevator plan as it best preserves the historic face of the library but does not in any way compromise accessibility. It's wonderful that the library won't be closing."

Existing Building
Life Safety & Accessibility Analysis

Existing Building
Life Safety & Accessibility Analysis

Life Safety and Accessibility analysis for the Cornish library has been conducted based on the 2010 National Building Code of Canada with the 2011 Manitoba Amendments and includes, but not limited to, the review of the following areas:

Interior Fire Separations
Doors & Door Hardware
Access to Exit & Egress
Health Requirements / Washrooms
Accessibility & Universal Access
Fire Alarm / Exit Signage & Emergency Lighting

Unfortunately the building codes in place at the time of construction do not reflect the current building code requirements necessary for a facility such as this, therefore, there are assumptions made regarding the intent of life safety within the building. Prior to any renovations or additions, confirmation of assumptions made will require approval from the Local Authority having Jurisdiction.

Based on documentation provided by the City of Winnipeg, asbestos containing materials have been found to be present within the existing library building. Appropriate procedures must be put into place prior to any renovation / construction work and any removal of asbestos or other hazardous materials shall only be performed by a qualified contractor in compliance with Workplace Safety & Health regulations.

The scope of work for the existing buildings life safety and accessibility analysis did not include for any destructive testing. Therefore it was difficult to determine precisely the exact construction for some of the walls around areas required to be protected with fire separations. For this reason it can be assumed, that due to the time period for the buildings construction, any walls in question do not meet the requirements for a fire rated separation wall assembly based on the current code requirements.

Article 3.1.2. Major Occupancy Classification

- Major Occupancy: *Group 'A', Division '2', Assembly*
- Building Area: 388 sq.m.
- Number of Storeys: One + Basement
- Facing Streets: Two
- Construction: Combustible & Non-combustible

Article 3.1.17. Occupant Load

•	Basement Floor:	North Program Room	60	(posted occupancy)
		South Program Room	60	(Occupancy required to be posted)
		Mens / Womens W/C	2	(1 per each)
•	Main Floor:	Entire Floor Area	89	(3.70 sq.m. per occupant)
•	Total Existing Building Occupant Load:		211	

Article 3.2.2. Building Size & Construction Relative to Occupancy

- *Article 3.2.2.28.* *Group 'A', Division '2', One Storey*
- Building is constructed with both combustible and non-combustible construction which is permitted.
- Building is un-sprinklered.
- Main floor assembly is required to be a fire separation with a fire resistance rating not less than 45 minutes. Actual main floor is cast in place concrete of sufficient depth to meet requirements for 45 minutes. Existing penetrations through floor are wide open and are required to be sealed with fire stopping material.
- Walls supporting an assembly required to have a fire resistance rating shall also have a fire resistance rating not less than the floor assemby. Existing supporting walls are concrete and masonry which meet the rating requirements.

Article 3.4.2.1. Minimum Number of Exits

- ***(1)*** *Two exits are required from main floor and basement floor areas.* Two existing exits are provided from both floor areas, however, both existing exits do not comply with the requirements of the code.

Article 3.4.4.1. Fire Resistance Rating of Exit Separations

- ***(1)*** *Every exit shall be separated from the remainder of the building by a fire separation having a fire resistance ratingnot less than 45 minutes.* Existing doors and glazing within doors are not fire rated. Fire resistance rating for all existing wall constructions cannot be confirmed, however, where walls are masonry or concrete it is assumend that they meet the fire resistance rating.

Article 3.4.4.4. Integrity of Exits

- ***(1)*** *A fire separation that separates an exit from the remainder of the building shall have no openings except* ***(d)*** *exit doorways.* Various openings are visible within existing walls around the buildings exit enclosures.
- ***(7)*** *A service room shall not open directly into an exit.* Existing service room door opens into the exit enclosure.
- ***(8)*** *Storage rooms, washrooms, toilet rooms, laundry rooms and similar ancillary rooms shall not open directly into an exit.* Existing door out of staff kitchen opens into the exit enclosure.

Article 3.4.6.2 Minimum Number of Risers

- ***(1)*** *Every flight of interior stairs shall have not less than 3 risers.* Existing stairs at basement floor have only 2 risers up to an intermediate landing prior to asscending the exit stairs.

Article 3.4.6.4 Handrails

- ***(1)*** *Hand rails are required on both sides of all stairs and ramps regardless of width.* Only one handrail provided on West exit stair. Majority of exiting handrails do not comply with the current code requirements.

Article 3.4.6.8. Treads and Risers

- ***(2)*** *Steps for stairs shall have a rise between successive treads not less than 5" and not more than 7".* Existing stairs vary in riser height and all exceed the maximum required dimension by up to 1".

Article 3.4.6.9. Curved Stairs

- ***(1)*** *Tapered treads shall not be used in an exit.* Tapered treads are used in the existing exit stair at West end of library which is not permitted within an exit.

Article 3.4.6.11. Doors

- ***(1)*** *The distance between a stair riser and the leading edge of a door during its swing shall be not less than 2'-0".* Existing interior double doors at top of main entry stairs and basement door accessing stairs do not comply with the required clearance.
- ***(2)*** *No exit door shall open directly on to a step.* Existing main entry exterior doors open directly onto a step.

Article 3.4.6.12. Direction of Door Swing

- ***(1)(a)*** *Every exit door shall open in the direction of exit travel.* Doors accessing and exiting the existing west exit stairs open into the space, which is against the exit travel.

Article 3.7.2.2. Water Closets

- ***(1)*** *Water closets shall be provided for each sex assuming that the occupant load is equally divided between males and females. Based on existing calculated occupant load and as per* ***Table 3.7.2.2.A.*** 5 water closets are required for females and 3 water closets for males. Existing provides only 1 per male and female occupant and 1 dedicated strictly for staff use.

Article 3.8.1.2. Entrances

- ***(1)*** *A pedestrian entrance to a building shall be barrier free.* Existing building entrances do not provide barrier free access.
- ***(2)*** *If altering an existing building and it is not practical to comply with sentence* ***(1)****, then at least one pedestrian entrance shall be barrier free.*

Article 3.8.1.5. Controls

- ***(1)*** *Controls for the operation of building services or safety devices, including electrical switches located within a barrier free path of travel, shall be accessible to a person in a wheelchair, operable with one hand, and mounted between 1'-4" and 4'-0".* Controls vary in height throughout the building with most exceeding the maximum dimension.

Article 3.8.2.3. Washrooms Required to be Barrier Free

- ***(5)*** *A minimum of one universal toilet room shall be provided on each floor of a newly constructed building.* There are no washrooms provided on the main floor level.

Article 3.8.3.3. Doorways and Doors

- ***(1)*** *Every doorway that is located in a barrier free path of travel shall have a clear width not less than 2'-8 1/2" when the door is in the open position.* The majority of existing doors are 3'-0" wide with the exception of the basement janitors room, which meets the clearance requirements.

Article 3.8.3.14. Counters

- ***(1)*** *Every counter more than 6'-6" long, at which the public is served, shall have at least on barrier free section.* Existing circulation counter is not barrier free.

Article 3.8.3.16. Drinking Fountains

- ***(1)*** *If drinking fountains are provided, at least one shall be barrier free.* Drinking fountain provided near circulation counter and appears to meets the requirements for barrier free.

Interior Fire Separations


Image 1

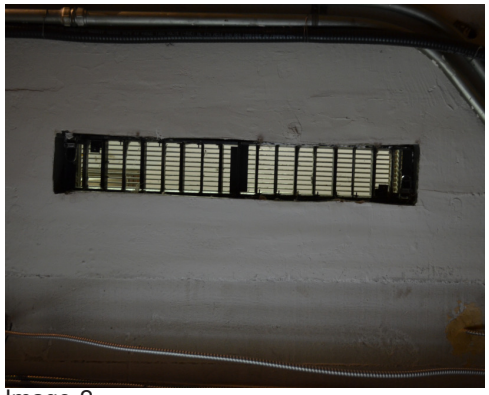


Image 2


Image 3

Main Floor

- Basement exit stairs form part of the main entry vestibule and exit stair from the main floor, therefore, a fire rated separation is required to enclose the main entry vestibule from the remainder of the floor area. Image 1
- Walls around stair leading up to the mezzanine level is required to form part of the required fire rated separation between the exit vestibule and main floor area.
- West exit stair is required to be separated from the remainder of the floor area with a fire rated separation.
- Floor construction between main and basement floor areas is required to be a fire rated separation. Existing floor construction appears to be cast concrete of sufficient depth to provide required rating, however, all mechanical and electrical penetrations through the floor construction do not appear to be complete with fire stopping mechanisms. Image 2

Basement Floor

- Exit stair up to main entry vestibule is required to be separated from the remainder of the floor area by a fire rated separation.
- West exit stair is required to be separated from the remainder of the floor area with a fire rated separation. Currently the electrical room is open and forms part of the exit stair which is not permitted by code.
- Janitor room under main entry stair is required to be separated from the remainder of the floor area with a fire rated separation. Existing penetrations and wall grille are not fire rated. Image 3

Doors & Door Hardware

Image 1

Image 2

Image 3

Main Floor

- Double doors at top of main entry vestibule stairs are required to be fire rated and have door release hardware. Existing doors are fully glazed which is not acceptable unless the glazing is fire rated glass. Distance required between the door swing, in its open position, and the first stair riser does not comply with the minimum 2'-0" dimension. Image 1
- Door at west exit stair is required to be fire rated complete with door release hardware. Door currently swings open into the library which is against the direction of travel and is not permitted by code for an exit door. Image 2
- Main entry doors open directly onto a step which is not permitted by code. Minimum 2'-0" dimension required between door swing and first stair riser. Door release hardware required on exit doors.
- Door up to mezzanine level forms part of the required fire separation and is therefore required to be fire rated. Door is not rated.

Basement Floor

- Door and glazing accessing stair up to main entry is required to be fire rated. Door and glass is not rated. Door release hardware is present. Image 3
- Doors leading to west exit stair from main corridor and staff kitchen are required by code to be fire rated and to swing in the direction of path of travel. Existing doors do not comply with the requirements.
- West stair exterior exit door at grade level is required to swing out in the direction of travel and be complete with panic hardware.
- Janitor room door is required to be fire rated. Door is not rated.

Access to Exit & Egress


Image 1


Image 2


Image 3

Main Floor

- Two means of egress currently provided from the main floor area. This meets the requirements of the code for a building of this size and occupancy, however, aspects of both exits do not comply with the requirements of the code.
- Angled stairs within west exit stair are not permitted by code in an exit. Image 1
- Height of guardrail at main floor landing within the west exit stair does not meet the height requirements of 42” for guardrails. Image 2
- Contrasting nosing present on both sets of exit stairs however, flooring material is smooth and could become slippery when wet. Flooring for exit stairs are required to have a slip resistant finish.
- Handrails are required by code to be installed on both sides of all stairs. Handrail has only been provided on interior side at west exit stair, however, it does not comply with the requirements of the code. Handrail has not been not provided at north side of main entry stair and existing handrails do not comply with the requirements of the code. The 2010 City of Winnipeg Accessibility Design Standards require a dual height set of handrails to be provided at all stair locations. Image 3
- Stair risers on main entry stairs are approximately 8” high, which is almost a full 1” over the the maximum riser height permitted by code.

Access to Exit & Egress


Image 1


Image 2


Image 3

Basement Floor

- Existing second means of egress from basement area is provided via a offshoot corridor running west from the main corridor area. The buildings electrical service room and staff kitchen room open directly into the exit stair which is not permitted by code. Image 1

- Only 2 risers on run of stairs up to landing at bottom of exit stairs up to main entry vestibule. A minimum of 3 risers are required by code for any interior stair. Hand-rails are required on both sides for all stairs. No handrails provided. Image 2

- Stair risers up to main entry vestibule are approximately 7 1/2" high, which is roughly 1/2" over the the maximum riser height permitted by code.

- Occupancy within the large program rooms, based on calculations taken from the National Building Code of Cananda, code can accommodate greater than 60 occupants which would then require a second means of egress from the room. No second means of egress has been provided. Signage is required to be posted limiting the number of occupants to below 60. Signage has been provided at the entrance to the north program room.

- West exit stair exterior door at grade level opens into the exit stairs. Exit doors are required to open in the direction of path of travel. Image 3

Health Requirements / Washrooms


Image 1


Image 2


Image 3

- Currently all washroom facilities are located within the basement floor area.
- The number of washrooms currently within the library does not meet the number required by todays code for a building of this size and occupancy classification.
- According to table 3.7.2.2.A within the 2010 National Building Code of Canada with the 2011 Manitoba Amendments a building of this size and occupancy requires 3 waterclosets for male and 5 waterclosets for female.
- Currently there are only two individual use washrooms located with the basement floor area for public use. One is dedicated for men and one women. The mens washroom also provides a urinal, however, it is within an individual use washroom and therefore cannot count as an additional fixture. Image 2&3
- A dedicated staff washroom is provided off of the staff room and is not permitted to be used by the general public. Image 1
- As the number of required waterclosets within a building are determined by a buildings occupancy count calculated by the code, it is typical to find the amount of waterclosets required to be un-realistic in regards to the actual day to day use of the building. Further discussions with the local authority having jurisdication should take place as it may be possible to make a case that due to the age of this building, its existing construction, layout and the the unlikely occurance that the buildings calculated maximium occupancy will ever be met at a single time and that the existing facilities have served the buildings needs to date, the additional expense required to provide the required additional number of waterclosets would be better served in other aspects of the building.

Accessibility & Universal Access


Image 1


Image 2


Image 3

Entrances

- No accessible access provided into the library or to either the main or basement floor levels. Main floor level is situated approximately 7'-0" higher than the City of Winnipeg sidewalk and is only accessible via the interior main entry stairs located on the east elevation fronting West Gate. In a renovation situation by code a minimum of only 50% of both public and staff entrances are required to meet barrier-free accessibility standards.

- Main entry doors are accessed on the exterior by two stair risers. One riser is 2" higher than the other. All risers in a set of stairs are to be by code equal. No handrail has been provided or colour contrasting anti-slip nosings. Hardware on main entry doors require grasping and finger control which does not comply with accessibility standards. Image 1

- Book drop is located beside main entry door which is up two stair risers and not accessible to anyone in a wheelchair.

Controls

- Typical heights for light switches and other controls within the building vary greatly from 52" to 73" above the floor. These heights exceeds the acceptable accessible range, which is between 16" and 48" above the floor. Image 3

- An auto power door operator has been installed to control the main entry doors and appears to be functioning as required. Image 2

Accessibility & Universal Access

Image 1


Image 2


Image 3

Parking

- No public, including accessible parking has been provided. Parking is available along West Gate and surrounding neighborhood streets. A designated accessible parking spot has been identified on West Gate directly in front of the building. Image 1

Washrooms

- Washroom facilities are only provided on the basement floor level to whic universal access has not been provided.
- Existing individual washrooms have been modified to provide a level of barrier free accessibility, however, the washrooms do not fully comply with all aspects for barrier free accessibility. Image 2
- Mechanical piping installed vertically behind toilet side grab bars in both washrooms is affecting the usability of the grab bars as it reduces the required clearance between the grab bar and wall surface. Image 3
- Doors into existing washrooms meet the clearance requirements identified within the NBC. The doors have accessible lever style hardware installed.

Signage

- No accessible signage has been provided for existing washrooms.

Accessibility & Universal Access


Image 1


Image 2


Image 3

Doors & Door Hardware

- All door hardware within the library with the exception of a few select doors do not comply with the requirements for universal accessibility as they require operation with grasping and twisting of the wrists. Image 1

- Majority of existing doors within the library are 3'-0" providing approximately 2'-9" clearance exceeding the clear opening requirement for universal access of 2'-8 1/2" by the National Building Code of Canada when the door is in the fully opened position.

- Door into Janitor's room does not meet the clear width clearances required for universal access as noted above. Universal access is required into all janitor rooms. Clear opening provided is only 2'-5".

Stairs

- Contrasting nosing present on both sets of exit stairs however, stair nosings extend out from the riser with an abrupt underside which is not permitted as it could cause a tripping hazard. Image 2

- Flooring material is smooth and could become slippery when wet. Flooring is required to have a slip resistant finish.

- No detectable warning surface provided within the existing flooring on the landings at the top of all stair runs.

- Riser heights, as previously noted, exceed the maximum required dimension. However, it would not be feasible to attempt to correct this condition and should therefore be discussed with the local Authority Having Jurisdiction. Image 3

Accessibility & Universal Access


Image 1


Image 2


Image 3

Handrails

- West exit stair has one handrail installed on the interior side of the stair which does not meet the accessible requirements for graspability or continuity. Handrails are required to be installed on both sides of stairs with the interior one being continuous along the entire run of stairs.
- The 2010 City of Winnipeg Accessibility Design Standards require a dual height set of handrails to be provided at all stair locations.
- Majority of existing handrails do not meet the cross-sectional profiles nor have a continous graspable portion throughout its entire length. Image 1

Millwork / Cabinetry / Shelving

- Circulation service counter is not accessible and has not been designed to accommodate either public or staff users in wheelchairs. Image 2
- Spacing between book collection stacks within the main floor area appears to meet the required 43 1/4" clear requirement as identified within the 2010 City of Winnipeg Accessibility Design Standards .
- Kitchen cabinetry within the staff room is not accessible.
- Cabinetry within the south program room is not accessible.

Drinking Fountain

- Existing drinking fountain is located near the circulation desk and appears to be accessible and in good working order. Image 3

Fire Alarm / Exit Signage & Emergency Lighting

Image 1

Image 2

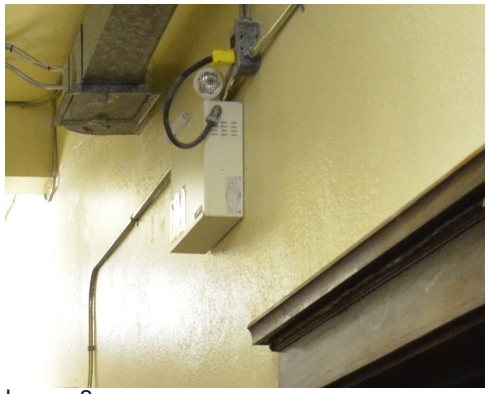


Image 3

Fire Alarm

- Existing fire alarm panel and system is acceptable and does not require any upgrade. Image 1

Exit Signage & Emergency Lighting

- Exit signage and emergency lighting is recommended to be upgraded inorder to meet the current code requirements. Image 2 & 3

Proposed Accessibility / Life Safety &
Interior Functional Layout Assessment

Proposed Accessibility / Life Safety & Interior Functional Layout Assessment

The goal and intent of this report is to determine potential solutions for providing universal access to a century old historical library building capable of providing public users with a safe, convenient and accessible community space.

Our analysis of the existing building identifies a number of concerns with respect to both accessibility as well as life safety when measured against the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.

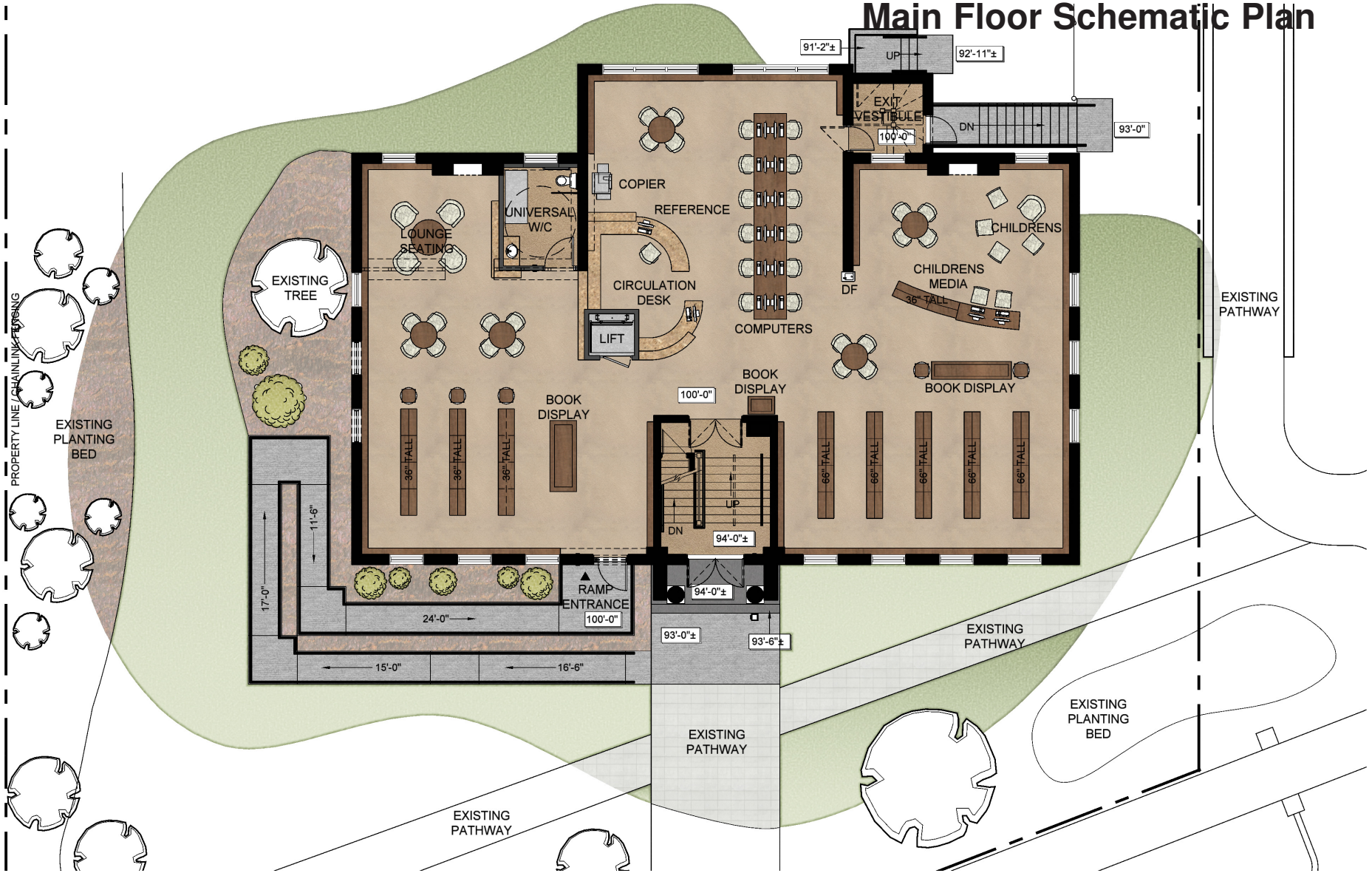
Based on this analysis two complete options / strategies have been developed, each with their own merit, and each one capable of providing both universal access as well as a safe community environment for the buildings users. The two options are an external ramp up to main floor level complete with an internal passenger lift system and an external full service elevator addition with its own dedicated entrance. Both of these options are discussed in further detail in the following pages and elaborate further as to the means for addressing the existing buildings lack of accessibility, life safety and the impacts on the interior layout functions.

Schematic plan drawings have been developed for each of the two above mentioned options/strategies. Through the use of these drawings we can assess each option both on their respective positive and negative attributes so as to determine the most optimum solution.

Ramp & Interior Lift System Option

Ramp & Interior Lift System Option

Main Floor Schematic Plan



*dashed lines represent required demolition

Ramp & Interior Lift System Option

Basement Floor Schematic Plan

*dashed lines represent required demolition

Main Floor - Ramp & Interior Lift System

Architectural

- A new accessible ramp is to be constructed along the east elevation to access the existing main floor level. The existing dimension from the north building elevation to the property line / existing sidewalk is not sufficient enough to facilitate the new ramp construction, as well, locating the ramp to the north east would also affect the current angled pathway running across the libraries front yard which is used daily by pedestrians. Attention must be paid to the ramp detailing to ensure that the new ramp does not take away from and is sympathetic to the existing buildings historical character.
- A new accessible entrance into the library is located along the east elevation at the top of the ramp is highly visible from West Gate. This location utilizes an existing window opening allowing the new entrance to fit within and minimize the effects on the existing aesthetics of the libraries elevation. The new door will be constructed in a manner to match the existing door details from the library and be complete with an auto door operator.
- The new interior lift system is centrally located within the libraries floor space and is in close proximity to the circulation counter for staff monitoring. The new walls around the lift are only 42” in height so as to maintain the sense of openness within the library space.

Structural

- Due to the elevation difference between the main floor and grade level the ramp system is extensive and will require a switch back and guardrails.
- The construction of the new ramp will include reinforced concrete walls and structural ramp slabs and be supported on cast-in-place concrete friction piles. The ramp is to be located away from the existing foundation and be connected discretely to the existing east wall of the main floor.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A new opening is required to be provided within the existing main floor construction to accommodate the new lift system.

Main Floor - Ramp & Interior Lift System

Electrical

- Power and services will be required for the operation of the new lift system and new auto door operator on the ramp entrance door.
- Additional fire alarm devices and tie-in into the existing system will be required for the new lift system and new ramp entrance door.
- Emergency exit signage and lighting will be required at the new ramp entrance door.
- New exterior lighting will be installed along the buildings east elevation to provide illumination at the new ramp entrance door and along the ramp.
- The existing electric cabinet unit heater located at the new ramp entrance door is required to be removed and a new one provided.

Basement Floor - Ramp & Interior Lift System

Architectural

- The existing east elevation window within the womens washroom will be required to be removed and infilled due to the new ramp construction above.
- The wall construction required around the lift system occupies a small portion of the south east corner in the existing staffroom. Walls will be full height and will be required to be fire rated construction.
- The new entry door for the lift system is accessed directly off of the main corridor allowing the buildings occupants full use of the lift without disruption to any of the ongoing fuctions within any of the other spaces. A new door opening will have to be provided within the existing wall to accommodate the new lift door. The new door will be fire rated and be complete with an auto door operator.

Structural

- The new lift system is located adjacent to existing bearing walls within the basement and easily integrates into the existing structural system. New steel beams are to be installed tight to the underside of the main floor and bear on the existing masonry walls to provide permanent support for the main floor slab at the new lift opening.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A section of the basement floor will have to be removed and a new thicker recessed slab installed to support the lift and provide flush access to the adjacent basement floor level.

Mechanical

- Condensate return piping running along the underside of the main floor in the area of the new lift system will be required to be relocated.

Basement Floor - Ramp & Interior Lift System

Electrical

- The existing data rack cabinet will be required to be relocated into the new staff room to accommodate the new lift system.
- Power will be required for the new auto door operator for the entrance door into the lift.

Main Floor - Life Safety & Accessibility

Architectural

- The existing exterior main entry stairs will have to be modified to provide a new stone landing in order to eliminate the step down directly under the main entrance doors. The existing sidewalk at the stairs will have to be raised to ensure both risers on the entry stairs are equal.
- All non-compliant door hardware is to be replaced with barrier free accessible hardware.
- A new dual height set of handrails are to be provided at all stair locations to comply with the 2010 City of Winnipeg Accessibility Design Standards for handrails.
- A fire rated separation is required around the main entry vestibule as it currently functions as an exit from main floor level and is shared with the exit stairs from the basement. The Interior vestibule double doors and door accessing the basement floor area are to be replaced with fire rated doors and fire rated glazing and be complete with door release hardware.
- The existing egress stair located on the west elevation of the building requires extensive renovations and modifications to be a functional and code compliant egress from both the main and basement floor areas. Exit stairs by code require a fire rated separation from the remainder of the floor area. The door on the main floor will have to be removed and the existing rough opening enlarged in order to comply with clearance requirements for exit doors. The door will be replaced with fire rated door complete with door release hardware and the swing orientation revised so that the door swings in the direction of travel. A new exterior steel stair from main floor level to grade will be provided exiting north out of the exit vestibule. A new floor level will be constructed throughout the entire exit vestibule providing a separation between the main and basement floor areas. Modifications will be required to the existing sloped roof at the exit stair to allow for the new exterior door.
- The existing flooring on all stairs and landings will be replaced with a slip-resistant flooring and be complete with colour contrasting nosings. The stairs will be modified to eliminate the tripping hazard potential from the extended nosing.
- The new universal washroom is located along the west elevation where it utilizes two existing full height walls limiting the impact the new washroom will have on the libraries overall interior sense of openness. The new washroom will be fully accessible and meet all requirements identified within the 2010 City of Winnipeg Accessibility Design Standards. The door into the new washroom will be complete with an auto door operator and will be highly visible from the new circulation counter for easy staff monitoring.
- Barrier-free accessible signage will be provided as required.

Main Floor - Life Safety & Accessibility

Structural

- The new exterior steel exit stair along the buildings west elevation will be supported partially on the existing exterior wall and partially on a new pile foundation.
- A new main floor level landing is to be constructed within the existing west exit vestibule to provide access to the new exterior stair. The new landing construction will be supported off of the existing masonry walls.
- Structural modifications will be required to the existing exit stair wood framed roof to accommodate a new exterior exit door.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A new cut stone landing will be provided on top and pinned into the existing landing, level with the door sill.

Mechanical

- Heating will be required within the new exit vestibule.
- New heating, exhaust, plumbing services and fixtures will be provided for the new universal washroom.

Electrical

- All existing building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting height requirement for barrier-free accessiblility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- New lighting, general room power for the room and power for the new auto door operator will be provided for the new universal washroom.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exterior exit door and within the renovated exit vestibule.

Basement Floor - Life Safety & Accessibility

Architectural

- All non-compliant door hardware is to be replaced with barrier free accessible hardware. Recommendation is to replace existing doors with new as many are in poor shape and will not support the modifications required for the new hardware. Existing wood frames could remain as they appear to be in good condition.
- The existing washrooms will be renovated and modified so as to provide additonal fixtures for occupant use. (The additional fixtures will still not provide the quantity required based on the calculation taken from the 2010 National Building Code of Canada with the 2011 Manitoba Amendments as noted previously.) The renovated washrooms will comply with all accessibility standards. The doors into the existing washrooms will be equiped with auto door operators
- A new dual height set of handrails are to be provided at all stair locations to comply with the requirements of the 2010 City of Winnipeg Accessibility Design Standards for handrails.
- A fire rated separation is required by code around the basement exit stairs up to main entry vestibule. The door is to be replaced with a fire rated door and fire rated glazing complete with new door release hardware. New dual set of handrails will be provided on both sides of the two riser steps at the door to the basement exit stair.
- The existing egress stair located on the west elevation of the building requires extensive renovations and modifications to be a functional and code compliant egress from both the main and basement floor areas. Exit stairs by code require a fire rated separation from the remainder of the floor area, therefore, a new fire rated partition wall will be constructed to provide an exit vestibule at the base of the stairs. The door opening from the existing staff kitchen will have to be infilled so that it does not open directly into the new exit stair. A new door will be provided along the west wall of the main corridor to provide access into the new corridor leading to the exit stairs and service room. The existing grade level landing will have to be lowered to account for the new main floor vestibule construction above, therefore, a new exterior recessed concrete stair will be provided. All new exit doors, where required, will be fire rated complete with fire rated glazing and door release hardware.
- The existing flooring on all stairs and landings will be replaced with a slip-resistant flooring and be complete with colour contrasting nosings. The stairs will be modified to elimate the tripping hazard potential from the extended nosing.
- Barrier-free accessible signage will be provided as required.
- The existing door into the janitors room will be removed and the rough opening enlarged to provide barrier free access and replaced with a fire rated door.

Basement Floor - Life Safety & Accessibility

Architectural Continued

- The existing two riser stair at the bottom of the main basement stairs is not permitted by code. It is, however, an existing condition and would not be feasible to try and correct. Further discucssions with the Local Authority having Jurisdiction is recommended to review this existing condition.
- It is recommended to provide signage limiting the number of occupants to less than 60 for the south program room. The room can accommodate a greater number of occupants, however, by code any room with more than 60 occupants requires two means of exiting. Signage limiting occupancy has already been provided at the existing north program room.
- Fire stopping of all existing penetrations through walls into both exit stair wells as well as the janitor room will be required.
- New accessible cabinetry will be provided to replace the existing within the south program room.

Structural

- A new exterior recessed concrete stair will be constructed to the west of the building as part of the second means of egress from the basement floor area. The new exterior stair is to be supported on an independent piled foundation. An interior steel stair is to be constructed up to the new exterior exit door, landing and exterior recessed stair.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- Portions of existing concrete floor slabs within washrooms will have to be removed and new provided to accommodate new layout.

Basement Floor - Life Safety & Accessibility

Mechanical

- Heating will be required within the new exit stair.
- Heating, exhaust, plumbing services and fixtures will be provided for the renovated existing washrooms.
- Fire stopping and fire dampers will be installed on all ductwork or services penetrating the walls and ceiling of the existing Janitor's room.
- A new sink and accessible fixtures will be provided within the new cabinetry for the south program room.
- Drainage will be required within the floor structure of the new recessed exterior exit stair.

Electrical

- All existing building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting height requirement for barrier-free accessiblility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- Power will be provided for the new auto door operators on both doors into the renovated existing washrooms.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exit door and within the renovated exit vestibule.
- Lighting, power and heating will need to be modified for the new exit stair.

Ramp & Interior Lift System Option

Main Floor - Interior Function Layout

Architectural

- A new fully accessible circulation counter / reference counter located centrally within the library space will be provided. This central location provides a direct visual connection to the new ramp entrance door, universal washroom and lift system.
- Amalgamate all adult computer stations to a central location adjacent to reception and reference counter providing a visual prominence to all occupants upon entering the library.
- The childrens section has been relocated to the north west corner of the library providing a larger less confined space. A dedicated childrens media area has been provided where children can access various on-line child appropriate learning programs.
- A revised layout for the collection stacks is neccesary to accommodate the new layout. Additional table and lounge seating can be provided offering occupants a place to sit and read or work off of their laptop computers. All furnishings, lounge seating, collections stacks and book displays are the responsibility of the City of Winnipeg Library Services.
- New carpet flooring to be provided due to revised layout and interior construction.
- An additional book drop off will be provided at the top of the ramp next to the new entrance door.

Electrical

- As based on the revised interior layout modification, relocation of existing power and data sources are required to provide computer usage at all table and lounge seating areas.

Basement Floor - Interior Function Layout

Architectural

- The existing staff kitchen and storage room will be almalgamated into one staff use room. A new opening within the west wall of the storage room will provide access into the staff kitchen. The kitchen will be renovated to provide a smaller kitchenette and a space more relative to the current number of staff. The door into the staff washroom will be revised so that it now opens from the staff kitchen. This concentrates staff services into one location with access from the main corridor.
- The childrens program room has been relocated into the previous staff room. This space offers large west facing windows providing ample natural light and views into the landscaped backyard. Access into the room is directly across from main stair.
- The existing south and north program spaces will remain as large general programming spaces.
- As portions of the existing basement does not currenty have flooring it is recommended to provide new flooring over the entire basement floor area to brighten up and unify the basement level for the occupant users.
- All furnishings, etc. are the responsibility of the City of Winnipeg Library Services.

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.

Mechanical

- Plumbing fixtures within the existing staff washroom are old and are recommended to be replaced.
- The existing plumbing services will be modified and new fixtures provided within new staff room to accommodate the new kitchenette.

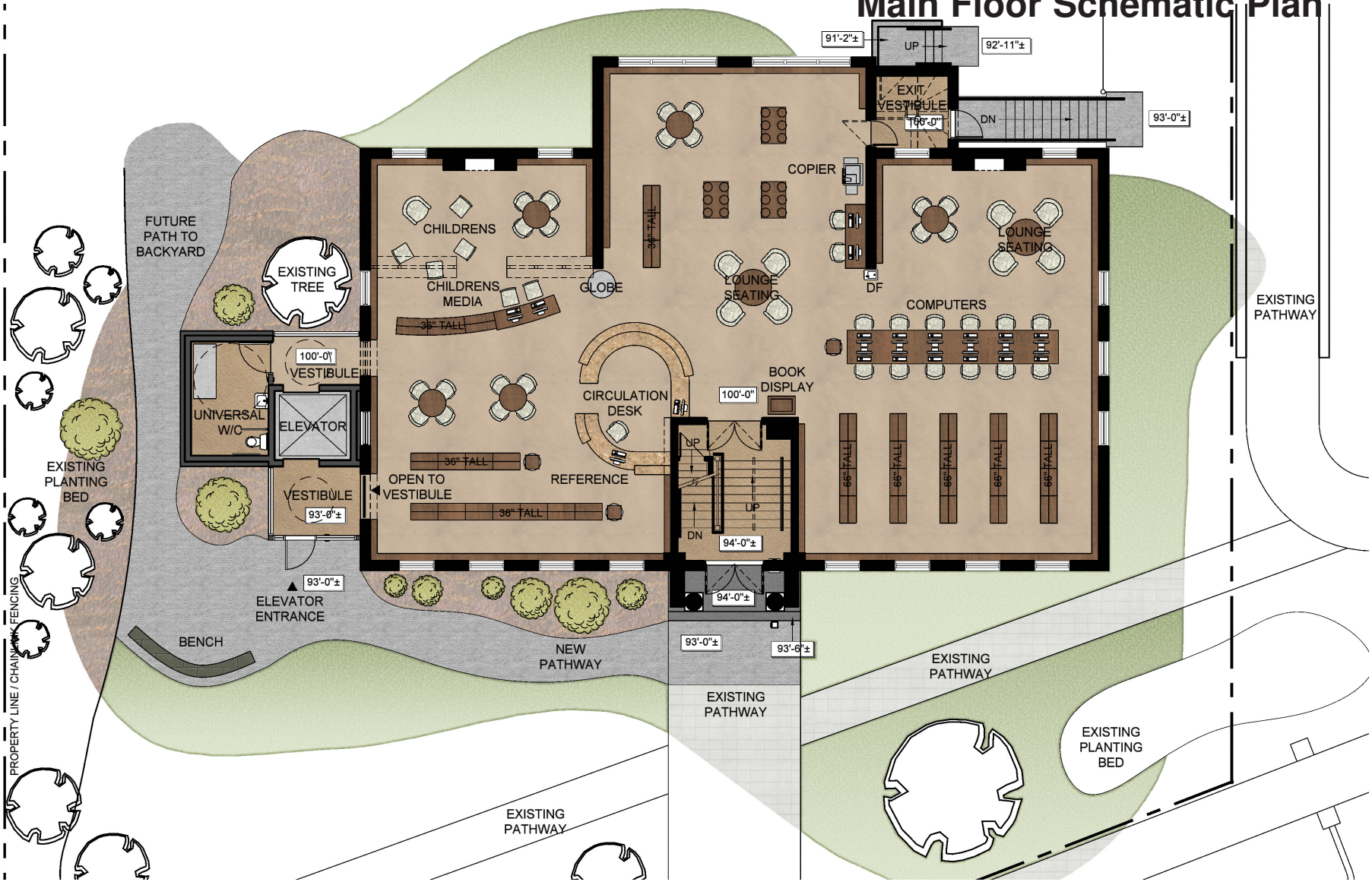
Electrical

- Modify and relocate lighting and power sources to accommodate the layout within the new staff room.

Elevator Addition Option

Elevator Addition Option

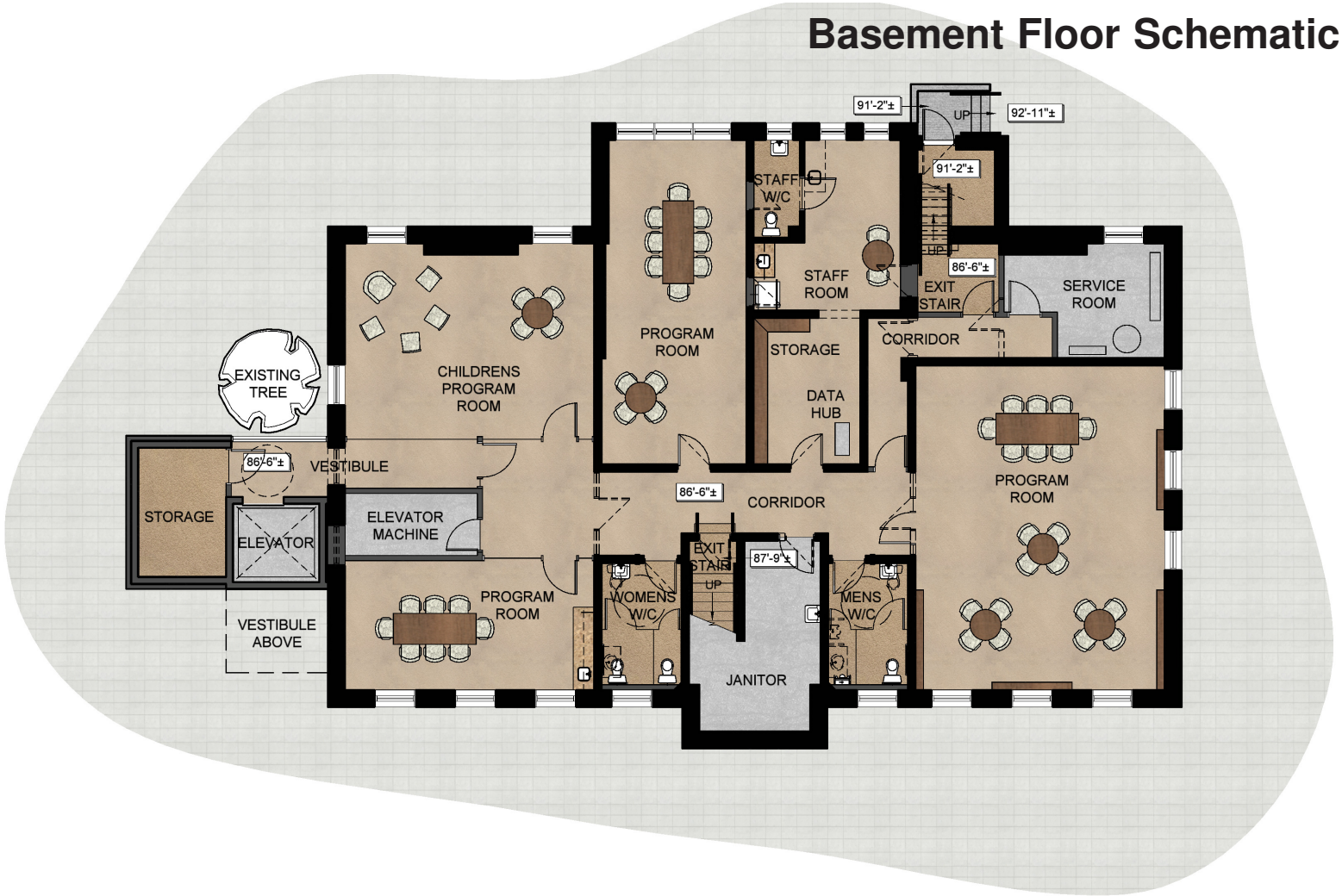
Main Floor Schematic Plan



*dashed lines represent required demolition

Elevator Addition Option

Basement Floor Schematic Plan



*dashed lines represent required demolition

Main Floor - Elevator Addition

Architectural

- A new full service elevator is to be provided within an addition south of the existing building to access both the main and basement floor levels. An internal elevator would not be feasible nor recommended due to the size of the elevator and its related construction as well as the overall impact it would have on the function of the library and the sense of openness within the main floor area. Locating the elevator addition along the south elevation preserves the historical character of the more visually prominent north and east building elevations.
- The new recommended elevator would be an Otis model, 3500 lbs, 3 stop, front and rear opening, holeless hydraulic.
- The new exterior grade level entrance to the elevator would be within a new enclosed glazed vestibule accessed by a pathway off of the existing library main entry path. The new vestibule door will be complete with an auto door operator. A fully glazed entrance vestibule provides a strong visual connection with the surrounding environment and it is this visual connection that will provide its users with a sense of comfort and security.
- Direct visual and audio connection via an new opening within the existing exterior south wall between the existing main floor area and grade level elevator vestibule provides the staff and building users knowledge of the ongoing activity within the elevators entrance. This connection provides a sense of security for both the elevator users and the libraries staff.
- The entire south elevation of the building will be affected by the new elevator addition. Every effort will be taken to preserve as much of the existing buildings south wall as possible and to highlight its construction within the new addition.
- The entire material palette for the new addition with respect to the exterior will require an indepth investigation so as to ensure that the aesthetics of the new addition is sympathetic to the existing historical character of the building.
- A new window has been provided within the west wall of the main floor elevator vestibule to allow natural lighting to filter into the library as well as providing a visual connection to the exterior enivironment.

Main Floor - Elevator Addition

Structural

- The main floor level vestibule construction is to be a reinforced concrete structurally supported slab.
- The elevator addition walls are to be load bearing concrete block extending up from the main floor level to a new steel deck and steel framed roof structure.
- The grade level entry vestibule is to be a reinforced concrete structurally supported slab. The glazed vestibule enclosure will be supported on steel columns and girts up to a steel framed roof.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.

Mechanical

- One existing electric cabinet unit heater along the south wall will be required to be removed to accommodate the new elevator addition.
- Heating will be required within the new elevator grade level entrance and main floor level vestibules.

Electrical

- The existing 400A, 120/208V, 3 phase main incoming service and distribution will be required to be up-graded in order to accommodate the additional electrical elevator load due to the existing large electrical heating load on the existing system.
- Power and feeder services will be required from the main distribution panel to the new elevator.
- Additional fire alarm devices and tie-in into new system will be required for new elevator.
- Power will be required for the new auto door operator at the grade level entrance vestibule.
- Lighting will be provided within the grade level and main floor elevator vestibules.
- New exterior lighting will be provided on the new addtion.

Basement Floor - Elevator Addition

Architectural

- Two existing windows along the south elevation will be affected by the new elevator addition. One window will be modified to provide access into the elevator addition and the other will be infilled with similar materials to match the adjacent wall surface.
- A portion of the existing south program room floor area will be used for the required elevator machine room. The walls around the elevator machine room and door are required to be a fire rated separation from the remainder of the floor area.
- A new window within the elevator vestibule provides natural lighting as well as a visual connection to the exterior environment.
- The new elevator vestibule sub-divides the existing large south program room into two smaller program rooms affecting the functions within these spaces.

Structural

- The elevator addition structure is reinforced concrete foundation walls extending up from cast-in-place concrete piles to the underside of the main floor construction.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.

Mechanical

- Two existing electric cabinet unit wall heaters along the south wall will be required to be removed and relocated to accommodate the new layout.
- Heating will be required within the new elevator vestibule.
- The elevator machine room will require an exhaust fan, thermostat control and transfer air grille complete with fire damper.
- Sump pump and oil interceptor will be required within the new elevator pit to deal with any moisture or oil dischage from the elevator unit.

Basement Floor - Elevator Addition

Electrical

- Power and lighting will be required within the new elevator machine room.
- Power and lighting will be required within the new elevator vestibule.

Main Floor - Life Safety & Accessibility

Architectural

- The existing exterior main entry stairs will have to be modified to provide a new stone landing in order to eliminate the step down directly under the main entrance doors. The existing sidewalk at the stairs will have to be raised to ensure both risers on the entry stairs are equal.
- All non-compliant door hardware is to be replaced with barrier free accessible hardware.
- A new dual height set of handrails are to be provided at all stair locations to comply with the 2010 City of Winnipeg Accessibility Design Standards for handrails.
- A fire rated separation is required around the main entry vestibule as it currently functions as an exit from main floor level and is shared with the exit stairs from the basement. The Interior vestibule double doors and door accessing the basement floor area are to be replaced with fire rated doors and fire rated glazing and be complete with door release hardware.
- The existing egress stair located on the west elevation of the building requires extensive renovations and modifications to be a functional and code compliant egress from both the main and basement floor areas. Exit stairs by code require a fire rated separation from the remainder of the floor area. The door on the main floor will have to be removed and the existing rough opening enlarged in order to comply with clearance requirements for exit doors. The door will be replaced with fire rated door complete with door release hardware and the swing orientation revised so that the door swings in the direction of travel. A new exterior steel stair from main floor level to grade will be provided exiting north out of the exit vestibule. A new floor level will be constructed throughout the entire exit vestibule providing a separation between the main and basement floor areas. Modifications will be required to the existing sloped roof at the exit stair to allow for the new exterior door.
- The existing flooring on all stairs and landings will be replaced with a slip-resistant flooring and be complete with colour contrasting nosings. The stairs will be modified to elimate the tripping hazard potential from the extended nosing.
- The New universal washroom is located within the new elevator addition so as not to affect the buildings valuable floor area or interior sense of openness. The new washroom will be fully accessible and meet all requirements identified within the 2010 City of Winnipeg Accessibility Design Standards. The door into the new washroom will be complete with an auto door operator and will be highly visible from the new circulation counter and can be easily monitored by the staff.
- Barrier-free accessible signage will be provided as required.

Main Floor - Life Safety & Accessibility

Structural

- The new exterior steel exit stair along the buildings west elevation will be supported partially on the existing exterior wall and partially on a new pile foundation.
- A new main floor level landing is to be constructed within the existing west exit vestibule to provide access to the new exterior stair. The new landing construction will be supported off of the existing masonry walls.
- Structural modifications will be required to the existing exit stair wood framed roof to accommodate a new exterior exit door.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A new cut stone landing will be provided on top and pinned into the existing landing, level with the door sill.

Mechanical

- Heating will be required within the new exit vestibule.
- New heating, exhaust, plumbing services and fixtures will be provided for the new universal washroom.

Electrical

- All existing building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting height requirement for barrier-free accessiblility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- New lighting, general room power for the room and power for the new auto door operator will be provided for the new universal washroom.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exterior exit door and within the renovated exit vestibule.

Basement Floor - Life Safety & Accessibility

Architectural

- All non-compliant door hardware is to be replaced with barrier free accessible hardware. Recommendation is to replace existing doors with new as many are in poor shape and will not support the modifications required for the new hardware. Existing wood frames could remain as they appear to be in good condition.
- The existing washrooms will be renovated and modified so as to provide additonal fixtures for occupant use. (The additional fixtures will still not provide the quantity required based on the calculation taken from the 2010 National Building Code of Canada with the Manitoba Amendments as noted previously.) The renovated washrooms will comply with all accessibility standards. The doors into the existing washrooms will be equiped with auto door operators
- A new dual height set of handrails are to be provided at all stair locations to comply with the requirements of the 2010 City of Winnipeg Accessibility Design Standards for handrails.
- A fire rated separation is required by code around the basement exit stairs up to main entry vestibule. The door is to be replaced with a fire rated door and fire rated glazing complete with new door release hardware. New dual set of handrails will be provided on both sides of the two riser steps at the door to the basement exit stair.
- The existing egress stair located on the west elevation of the building requires extensive renovations and modifications to be a functional and code compliant egress from both the main and basement floor areas. Exit stairs by code require a fire rated separation from the remainder of the floor area, therefore, a new fire rated partition wall will be constructed to provide an exit vestibule at the base of the stairs. The door opening from the existing staff kitchen will have to be infilled so that it does not open directly into the new exit stair. A new door will be provided along the west wall of the main corridor to provide access into the new corridor leading to the exit stairs and service room. The existing grade level landing will have to be lowered to account for the new main floor vestibule construction above, therefore, a new exterior recessed concrete stair will be provided. All new exit doors, where required, will be fire rated complete with fire rated glazing and door release hardware.
- The existing flooring on all stairs and landings will be replaced with a slip-resistant flooring and be complete with colour contrasting nosings. The stairs will be modified to elimate the tripping hazard potential from the extended nosing.
- Barrier-free accessible signage will be provided as required.
- The existing door into the janitors room will be removed and the rough opening enlarged to provide barrier free access and replaced with a fire rated door.

Basement Floor - Life Safety & Accessibility

Architectural Continued

- Signage limiting occupancy has already been provided at the existing north program room and is to remain.
- Fire stopping of all existing penetrations through walls into both exit stair wells as well as the janitor room will be required.
- New accessible cabinetry will be provided to replace the existing within the south program room.

Structural

- A new exterior recessed concrete stair will be constructed to the west of the building as part of the second means of egress from the basement floor area. The new exterior stair is to be supported on an independent piled foundation. An interior steel stair is to be constructed up to the new exterior exit door, landing and exterior recessed stair.
- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- Portions of existing concrete floor slabs within washrooms will have to be removed and new provided to accommodate new layout.

Mechanical

- Heating will be required within the new exit stair.
- Heating, exhaust, plumbing services and fixtures will be provided for the renovated existing washrooms.
- Fire stopping and fire dampers will be installed on all ductwork or services penetrating the walls and ceiling of the existing Janitor's room.
- A new sink and accessible fixtures will be provided within the new cabinetry for the south east program room.
- Drainage will be required within the floor structure of the new recessed exterior exit stair.

Basement Floor - Life Safety & Accessibility

Electrical

- All existing building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting height requirement for barrier-free accessiblility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- Power will be provided for the new auto door operators on both doors into the renovated existing washrooms.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exit door and within the renovated exit vestibule.
- Lighting, power and heating will need to be modified for the new exit stair.

Main Floor - Interior Function Layout

Architectural

- A new fully accessible circulation counter / reference counter located centrally within the library space will be provided. This central location provides a direct visual connection to the new elevator entrance vestibule, universal washroom and main floor elevator vestibule.
- All adult computer stations are amalgamated into a dedicated location visible from the circulation counter and easily accessible to all occupants upon entering the library.
- Existing wood millwork dividers enclosing the previous childrens area will be removed to create an enlarged childrens section providing a more spacious and less confined space with better visual connection to the circulation counter for staff monitoring. Removed wood millwork is recommended to be salvaged for re-use within the library for patching or modification purposes. A dedicated childrens media area has been provided where children can access various on-line child appropriate learning programs.
- A revised layout for the collection stacks is neccesary to accommodate the new layout. Additional table and lounge seating can be provided offering occupants a place to sit and read or work off of their laptop computers. All furnishings, lounge seating, collections stacks and book displays are the responsibility of the City of Winnipeg Library Services.
- New carpet flooring to be provided due to revised layout and interior construction.
- An additional book drop will be provided at the new elevator entrance vestibule.

Electrical

- As based on the revised interior layout modification, relocation of existing power and data sources are required within the new staff room

Basement Floor - Interior Function Layout

Architectural

- The existing staff kitchen and storage room will be almalgamated into one staff use room. A new opening within the west wall of the storage room will provide access into the staff kitchen. The kitchen will be renovated to provide a smaller kitchenette and a space more relative to the current number of staff. The door into the staff washroom will be revised so that it now opens from the staff kitchen. This concentrates staff services into one location with access from the main corridor.
- The existing large south program room has been subdivided into two medium sized program spaces due to the new required elevator vestibule.
- A new storage room will be constructed within the space directly beneath the new main floor universal washroom.
- The childrens program room has been relocated into the new south west program room. This space offers both west and south facing windows providing ample natural light and views into the landscaped backyard.
- The existing north program room will remain as a large general programming space.
- As portions of the existing basement does not currenty have flooring it is recommended to provide new flooring over the entire basement floor area to brighten up and unify the basement level for the occupant users.
- All furnishings, etc. are the responsibility of the City of Winnipeg Library Services.

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.

Mechanical

- Plumbing fixtures within the existing staff washroom are old and are recommended to be replaced.
- The existing plumbing services will be modified and new fixtures provided within new staff room to accommodate the new kitchenette.

Basement Floor - Interior Function Layout

Electrical

- Modify and relocate lighting and power sources to accommodate the layout within the new staff room.
- The existing data rack cabinet will be relocated into the new staff room to accommodate the new layout.
- Existing lighting, power and data willl be required to be relocated and modified to accommodate new childrens program and meeting rooms adjacent to the new elevator vestibule.
- Power and lighting will be provided for the new storage room.

Scope of Work /
Probable Budget Costing

Scope of Work /
Probable Budget Costing

MCM Architects Inc. and their consultants have prepared the following scope of work outlines based on the proposed accessibility options, life safety and interior functional layout assessments. As both of the options are strictly at a schematic level the scope of work outlined only provides a general indication of the work that would be required to perform and ultimately complete the costruction.

Probable budget costing has been prepared to a class 'C' level which has a variable range of +/- 20%. This variable range is typical and within the acceptable range for costing for design options at a schematic level. Further resolution for any of the developed options would provide a more specific scope of work and therefore, in turn, a more accurate representation of the required construction costs. All budget costing presented is indicitve of construction costs at the time of the report and would be subject to typical cost escalation.

Ramp & Interior Lift System Option

Main Floor - Ramp & Interior Lift System

Architectural

- Excavate and construct new cast concrete accessible ramp complete with painted steel guards and handrails.
- Remove existing east elevation window and portion of exterior wall construction to accommodate new exterior hollow metal insulated door and frame. Door to be complete with auto door operator.
- Regrade surrounding area complete with sodding, landscaping and tie new ramp into existing concrete pathway.
- Cut and remove portion of existing concrete floor structure to accommodate new lift shaftway.
- Provide new 750lbs capacity Garaventa Shaftway lift system complete with 39”x60” mid-size lift platform.
- Construct new GWB wall enclosure around new lift system. Walls to only extend 42” above floor.
- Paint all new or existing walls affected by new construction.

Structural

- Construct cast-in-place concrete ramp, 8” reinforced concrete walls and 6” structural ramp slabs, supported on (13) 16” diameter cast-in-place concrete friction piles.
- Provide 4”x4”x3/8” steel angle lintels at new door opening.

Electrical

- Remove existing unit cabinet heater and provide new electric heater.
- Provide new fire alarm devices for lift system and accessible door and tie into existing system.
- Provide power to new lift system and auto door operator.
- Provide new emergency exit signage and lighting.
- Provide new exterior lighting along south and east elevations of building for new ramp.

Basement Floor - Ramp & Interior Lift System

Architectural

- Remove existing window within womens washroom and infill with similar materials to match adjacent wall surface.
- Cut new opening within existing interior wall construction to accommodate new lift system access door. Door to be fire rated and complete with auto door operator.
- Construct new fire rated GWB wall enclosure around new lift system.
- Remove portion of existing floor construction at lift system to accommodate pit recess.
- Paint all new or existing walls affected by new construction.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Structural

- Provide 4”x4”x3/8” steel angle lintels at new door opening.
- Provide steel beams tight to underside of existing main floor structure to support perimeter of new opening.
- Provide recessed concrete floor slab for lift system pit.

Mechanical

- Relocate mechanical piping in area of new lift system.

Electrical

- Provide power to auto door operator at new lift door.
- Relocate existing data rack.

Ramp & Interior Lift System Option

Main Floor - Life Safety & Accessibility

Architectural

- Provide new cut stone landing at exterior main entry over existing. Provide colour contrasting abrasive strip on nosing of new landing. Remove, build-up and provide new concrete sidewalk adjacent to existing stairs.
- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Remove and provide new dual height set of wood handrails at interior main entry stairs and new dual height set of painted steel handrails on exterior main entry stairs.
- Provide door release hardware on existing exterior main entry doors.
- Remove and provide new fire rated double doors at top of main entry vestibule complete with fire rated glazing and door release hardware.
- Remove and provide new anti-slip flooring on stairs and landings complete with colour contrasting abrasive nosings. Modify stairs to remove extended nosing.
- Demolish existing west exit stair including main floor exit door, frame and portion of wall construction. Construct new landing at main floor level and provide new fire rated door and frame into new exit vestibule. Remove portion of exterior wall and roof construction to accommodate new insulated hollow metal door and frame. Both doors to be complete with door release hardware. Construct new exterior steel stair from main floor level down to new concrete slab at grade complete with steel guard and handrails.
- Construct new universal washroom. Remove existing wood millwork divider walls & shelving. Walls are to be full height GWB complete with acoustic batt infill insulation. Provide anti slip-resistant flooring, fold-down full size change table, accessible grab bars, millwork counter and acoustic ceiling tile. Provide new wood door complete with auto door operator.
- Provide accessible signage as required.
- Paint all new or existing walls affected by new construction.

Main Floor - Life Safety & Accessibility

Structural

- Construct new exterior exit stair and interior main floor level landing. Landing to be concrete topping on steel floor decking and structural steel frame.
- Provide 4”x4”x3/8” steel angle lintels at new door openings.
- Modify existing wood framed roof over new exit vestibule.
- Provide new cut stone landing to suit existing. New stone to be pinned onto existing and level with door sill.

Mechanical

- Provide new washroom fixtures and plumbing services for universal washroom.
- Provide exhaust fan for universal washroom.
- Provide HRV and electric duct heater for universal washroom.

Electrical

- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new electric heater within new exit vestibule.
- provide new fire alarm devices at new exit door and tie into existing system.
- Provide power to auto door operator for universal washroom.
- Provide lighting and power for universal washroom.
- Wire and connect new universal washroom exhaust fan.
- Provide new electric wall radiation with integral thermostats for universal washroom.
- Provide new electrical devices including lighting, interior and exterior at new exit vestibule.

Basement Floor - Life Safety & Accessibility

Architectural

- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Renovate existing washrooms to accommodate a second water closet or urinal. Provide new toilet partitions and anti-slip resistant flooring. Remove existing and provide new wood door complete with auto door operator.
- Remove and provide new dual set of wood handrails on all interior stairs.
- Remove and provide new fire rated wood door, fire rated glazing and door release hardware at main stairs. Provide new dual set of wood handrails on existing double riser step.
- Remove and provide new anti-slip flooring on stairs and landings complete with colour contrasting abrasive nosings. Modify stairs to remove extended nosing.
- Remove existing door and enlarge rough opening into janitors room. Provide new fire rated door and frame. Seal and firestop all penetrations through walls.
- Construct new fire rated GWB walls to create new exit corridor and separate exit stair from adjacent floor area. Provide new fire rated wood doors complete with door release hardware. Provide new wood door at service room.
- Demolish lower level portion of existing west exit stair and grade level landing. Construct new interior exit stair complete with dual height set of steel handrails. Remove and provide new insulated hollow metal exterior exit door complete with door release hardware. Construct new exterior recessed concrete stair up to grade level. Infill opening from staff kitchen into exit stair with materials to match adjacent surfaces.
- Fire stopping of all penetrations into both exit stairs as well as through existing main floor construction.
- Remove and provide new accessible cabinetry within existing south program room.
- Provide accessible signage as required.
- Paint all new or existing walls affected by new construction.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Basement Floor - Life Safety & Accessibility

Structural

- Construct new recessed cast-in-place concrete exterior exit stair and foundations.
- Construct new interior steel pan with concrete topping exit stairs supported with steel framing.
- Provide 4”x4”x3/8” steel angle lintels at new openings.
- Remove and provide new concrete floor slab within existing washrooms to accommodate new layout.

Mechanical

- Provide new washroom fixtures and plumbing services for renovated existing washrooms.
- Provide exhaust fans and ductwork for renovated existing washrooms.
- Provide stainless steel sink and fixtures within new south east program room accessible millwork.
- Provide fire damper on existing transfer air grille into Janitor’s room.
- Provide exterior drain and piping to weeping tile in floor of new recessed exterior exit stair.

Electrical

- Provide new electric heater within new exit vestibule.
- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new fire alarm devices at new exit door and tie into existing system.
- Provide new electrical devices including lighting, interior and exterior at new exit stair / vestibule.
- Provide power to auto door operators for renovated existing washrooms.
- Provide lighting and power for renovated existing washrooms.

Main Floor - Interior Function Layout

Architectural

- Provide new accessible circulation desk / reference counter millwork.
- Patch existing floor construction due to relocated / new power services.
- Remove existing and provide new carpet flooring.
- Paint all new or existing walls affected by new construction.
- Provide new book drop off at top of ramp.

Electrical

- Revise and provide new power for all relocated services / computers to accommodate new layout.

Ramp & Interior Lift System Option

Basement Floor - Interior Function Layout

Architectural

- Remove existing door into staff washroom and infill with concrete block flush to adjacent surfaces. Provide new opening and wood door into opposite wall of washroom for access from staff room. Provide new flooring and fixtures.
- Remove existing door into staff kitchen from staffroom and infill with flush to adjacent surfaces. Provide new opening within west wall of existing storage room to accommodate new layout for staff room / kitchen. Remove existing kitchen cabinetry and provide new kitchenette millwork. Modify existing storage shelving.
- Remove and provide new wood door and glazed sidelight into south program room to accommodate door swing from new lift.
- Paint all new or existing walls affected by new construction.
- Remove existing and provide new sheet good flooring over entire basement floor area.
- Remove and provide new wood door and glazed sidelight into north program room.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Structural

- Provide 4”x4”x3/8” steel angle lintels at new door openings.

Mechanical

- Provide new washroom fixtures within existing staff washroom.
- Modify and provide new services and sink within staff room to accommodate new kitchenette.

Basement Floor - Interior Function Layout

Electrical

- Modify lighting and power within staff room to accommodate new layout.

Ramp & Interior Lift System Option

Costing

Ramp & Interior Lift		
Architectural	$184,450	
Structural	$66,000	
Mechanical	$2,000	
Electrical	$14,000	
		$266,450
Life Safety & Accessibility		
Architectural	$239,300	
Structural	$19,000	
Mechanical	$26,100	
Electrical	$20,500	
		$304,900
Functional Layout		
Architectural	$153,350	
Structural	$500	
Mechanical	$7,000	
Electrical	$6,000	
		$166,850
	Sub-Total	$738,200
	GC Mark-up @ 10%	$73,820
	Design Continuation @ 5%	$36,910
	Sub-Total	$848,930
	Bonding @ .75%	$6,367
	Probable Budget Costs	$855,297

(+/- 20% not including disbursements, additional recommendations)
(Prices are in December 2012 dollars)

Additional Recommended Requirements

Architectural / Structural

- The following surveys are recommended to be conducted to provide pertinent information to be used in the resolution and formalization of the design option: Complete pre-renovation hazardous materials survey, geotechnical survey and land survey.

Mechanical

- Provide ventilation for the entire building using a gas fired grade mounted air handling unit for compliance with ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality. The unit would also provide air conditiong to the building and some heating. The buildings existing heating system would still operate as the main heating source and the existing air conditioning unit mounted on main floor mezzanine would need to be removed.
  As the existing building condition has been 'grandfathered' this option is only a recommendation at this point. However, if the renovation to the existing building is deemed substantial enough by the authority having jurisdiction they may at that point determine that the existing building systems are required to be brought fully up to the current code. This report has proceeded under the assumption that this option will not be a requirement and is therefore not reflected within the previously identifed scope of work nor included within the probable budget costing. The following is a list of items that would be included, but not limited to, within the scope of work dedicated to the new ventilation system for the existing building.
  - Potential modifications to the proposed layout to accommodate new ductwork.
  - GWB bulkhead construction to conceal new ductwork.
  - Fire dampers for all ductwork penetrating required fire rated separations.
  - Structural concrete pad and foundations to support grade level AHU
  - Exterior wall & floor penetrations for new ductwork.
  - Electrical tie for controls to the new AHU

  Close collaboration with Heritage Winnipeg will be required as the new ventilation system will have a tremendous impact on the historical character of the building. The budgeted cost for this ventilation upgrade would be $91,000. This cost only represents the mechanical portion and does not reflect any ancillary costs associated with required architectural, structural or electrical. (This option has not been included within proposed budget costing.)

Elevator Addition Option

Main Floor - Elevator Addition

Architectural

- Construct new elevator addition complete with grade level glazed entry vestibule. Provide power door operator on entrance door. Wall construction to be concrete block, air vapour barrier, rigid insulation and masonry veneer. Roof construction to be mod-bit roofing membrane, rigid insulation, roof vapour retardent and metal decking.
- Provide new 3500 lbs, 3 stop, front and rear opening, holeless hydraulic elevator.
- Remove existing south elevation window and portion of exterior wall construction to accommodate tie in for main floor elevator vestibule.
- Remove existing south elevation window and reinstall with light box construction at elevator hoistway location.
- Remove portion of existing south elevation exterior wall construction to provide clear opening from existing main floor area into new grade level elevator vestibule. Provide new glass guard rail.
- Paint all new or existing walls affected by new construction.
- Construct new concrete pathway and tie into existing concrete pathway.

Structural

- Provide 4”x4”x3/8” steel angle lintels at new openings.
- Construct new concrete block elevator hoisway walls, reinforced concrete vestibule floor constructions and steel framing for entry vestibule and roof.

Electrical

- Upgrade existing 400A, 120/208V, 3 phase main incoming service and distribution for elevator operation.
- Provide power and feeders for new elevator.
- Provide new fire alarm devices to accommodate new elevator and tie into existing system.
- Provide power to entrance vestibule auto door operator.

Main Floor - Elevator Addition

Electrical continued

- Remove existing unit cabinet heater.
- Provide new electric cabinet unit heater within new elevator entrance vestibule.
- Provide new electric wall radiation with integral thermostats for main floor elevator vestibule.
- Provide new emergency exit signage and lighting.
- Provide power for new force flow heater within entrance vestibule.
- Provide new exterior lighting around new elevator addition.
- Provide lighting and power within entrance and main floor level vestibules.

Basement Floor - Elevator Addition

Architectural

- Excavate surrounding grade to accommodate new elevator addition construction. Regrade surrounding area complete with sodding and landscaping.
- Remove existing south elevation windows and portion of wall construction to accommodate tie in for basement floor elevator vestibule. Construct fire rated GWB and glazed walls around elevator vestibule. Provide fire rated door complete with glazing.
- Remove existing south elevation window within new elevator machine room and infill with similar materials to match adjacent wall surface. Construct new fire rated GWB walls around required elevator machine room. Provide fire rated hollow metal door.
- Paint all new or existing walls affected by new construction.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Structural

- Provide 4”x4”x3/8” steel angle lintels at new openings.
- Construct new 8” thick reinforced cast concrete elevator hoisway pit walls up from cast-in-place concrete piles drilled to practical refusal up to the main floor construction.

Mechanical

- Provide new elevator machine room exhaust fan, thermostat, transfer air grille and fire damper.
- Provide sump pump and oil interceptor for elevator operation.

Basement Floor - Elevator Addition

Electrical

- Provide lighting and power for new elevator machine room.
- Provide lighting and power for new elevator vestibule.
- Remove and relocate two existing electric wall heaters from south wall of program room.
- Provide new electric wall radiation with integral thermostats for elevator vestibule.
- Provide new electric wall radiation within elevator pit.

Main Floor - Life Safety & Accessibility

Architectural

- Provide new cut stone landing at exterior main entry over existing. Provide colour contrasting abrasive strip on nosing of new landing. Remove, build-up and provide new concrete sidewalk adjacent to existing stairs.
- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Remove and provide new dual height set of wood handrails at interior main entry stairs and new dual height set of painted steel handrails on exterior main entry stairs.
- Provide door release hardware on existing exterior main entry doors.
- Remove and provide new fire rated double doors at top of main entry vestibule complete with fire rated glazing and door release hardware.
- Remove and provide new anti-slip flooring on stairs and landings complete with colour contrasting abrasive nosings. Modify stairs to remove extended nosing.
- Demolish existing west exit stair including main floor exit door, frame and portion of wall construction. Construct new landing at main floor level and provide new fire rated door and frame into new exit vestibule. Remove portion of exterior wall and roof construction to accommodate new insulated hollow metal door and frame. Both doors to be complete with door release hardware. Construct new exterior steel stair from main floor level down to new concrete slab at grade complete with steel guard and handrails.
- Construct new universal washroom within new elevator addition. Provide anti slip-resistant flooring, fold-down full size change table, accessible grab bars, millwork counter and acoustic ceiling tile. Provide wood door complete with auto door operator.
- Provide accessible signage as required.
- Paint all new or existing walls affected by new construction.

Main Floor - Life Safety & Accessibility

Structural

- Construct new exterior exit stair and interior main floor level landing. Landing to be concrete topping on steel floor decking and structural steel frame.
- Provide 4”x4”x3/8” steel angle lintels at new door openings.
- Modify existing wood framed roof over new exit vestibule.
- Provide new cut stone landing to suit existing. New stone to be pinned onto existing and level with door sill.

Mechanical

- Provide new washroom fixtures and plumbing services for universal washroom.
- Provide exhaust fan for universal washroom.
- Provide HRV and electric duct heater for universal washroom.

Electrical

- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new electric heater within new exit vestibule.
- Provide new fire alarm devices at new exit door and tie into existing system.
- Provide power to auto door operator for universal washroom.
- Provide lighting and power for universal washroom.
- Wire and connect new universal washroom exhaust fan.
- Provide new electric wall radiation with integral thermostats for universal washroom.
- Provide new electrical devices including lighting, interior and exterior at new exit vestibule.

Basement Floor - Life Safety & Accessibility

Architectural

- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Renovate existing washrooms to accommodate a second water closet or urinal. Provide new toilet partitions and anti-slip resistant flooring. Remove existing and provide new wood door complete with auto door operator.
- Remove and provide new dual set of wood handrails on all interior stairs.
- Remove and provide new fire rated wood door, fire rated glazing and door release hardware at main stairs. Provide new dual set of wood handrails on existing double riser step.
- Remove and provide new anti-slip flooring on stairs and landings complete with colour contrasting abrasive nosings. Modify stairs to remove extended nosing.
- Remove existing door and enlarge rough opening into janitors room. Provide new fire rated door and frame. Seal and firestop all penetrations through walls.
- Construct new fire rated GWB walls to create new exit corridor and separate exit stair from adjacent floor area. Provide new fire rated wood doors complete with door release hardware. Provide new wood door at service room.
- Demolish lower level portion of existing west exit stair and grade level landing. Construct new interior exit stair complete with dual height set of steel handrails. Remove and provide new insulated hollow metal exterior exit door complete with door release hardware. Construct new exterior recessed concrete stair up to grade level. Infill opening from staff kitchen into exit stair with materials to match adjacent surfaces.
- Fire stopping of all penetrations into both exit stairs as well as through existing main floor construction.
- Remove and provide new accessible cabinetry within new southeast program room.
- Provide accessible signage as required.
- Paint all new or existing walls affected by new construction.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Elevator Addition Option

Basement Floor - Life Safety & Accessibility

Structural

- Construct new recessed cast-in-place concrete exterior exit stair and foundations.
- Construct new interior steel pan with concrete topping exit stairs supported with steel framing.
- Provide 4”x4”x3/8” steel angle lintels at new openings.
- Remove and provide new concrete floor slab within existing washrooms to accommodate new layout.

Mechanical

- Provide new washroom fixtures and plumbing services for renovated existing washrooms.
- Provide exhaust fans and ductwork for renovated existing washrooms.
- Provide stainless steel sink and fixtures within new south east program room accessible millwork.
- Provide fire damper on existing transfer air grille into Janitor’s room.
- Provide exterior drain and piping to weeping tile in floor of new recessed exterior exit stair.

Electrical

- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new fire alarm devices at new exit door and tie into existing system.
- Provide new electrical devices including lighting, interior and exterior at new exit stair / vestibule.
- Provide new electric heater within new exit vestibule.
- Provide power to auto door operators for renovated existing washrooms.
- Provide lighting and power for renovated existing washrooms.

Elevator Addition Option

Main Floor - Interior Function Layout

Architectural

- Provide new accessible circulation desk / reference counter millwork.
- Patch existing floor construction due to relocated / new power services.
- Carefully remove and salvage existing wood millwork at existing childrens area. Reuse wood millwork for patching various areas around library due to new renovations.
- Remove existing and provide new carpet flooring.
- Paint all new or existing walls affected by new construction.
- Provide new book drop off at new elevator entrance.

Electrical

- Revise and provide new power for all relocated services / computers to accommodate new layout.

Elevator Addition Option

Basement Floor - Interior Function Layout

Architectural

- Remove existing door into staff washroom and infill with concrete block flush to adjacent surfaces. Provide new opening and wood door into opposite wall of washroom for access from staff room. Provide new flooring and fixtures.
- Remove existing door into staff kitchen from staffroom and infill with flush to adjacent surfaces. Provide new opening within west wall of existing storage room to accommodate new layout for staff room / kitchen. Remove existing kitchen cabinetry and provide new kitchenette millwork. Modify existing storage shelving.
- Remove existing door into south program room and patch walls. Provide glazed walls complete with wood doors and glazing into new new childrens program room and general program room adjacent to new elevator machine room and vestibule.
- Construct storage room within remaining void under new main floor universal washroom. Provide hollow metal door and frame and VCT flooring.
- Remove and provide new wood door and glazed sidelight into north program room.
- Remove existing and provide new sheet good flooring over entire basement floor area.
- Paint all new or existing walls affected by new construction.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.

Structural

- Provide 4”x4”x3/8” steel angle lintels at new openings.

Mechanical

- Provide new washroom fixtures within existing staff washroom.
- Modify and provide new services and sink within staff room to accommodate new kitchenette.

Basement Floor - Interior Function Layout

Mechanical continued

- Provide HRV, furnace, condensing unit, condensate pump and ductwork for the new southwest and southeast program rooms. This option will limit the occupancy within these rooms to approximately 20 people. (This option is not required if the new building AHU and ventilation system recommended requirement is provided.)

Electrical

- Modify lighting and power within staff room to accommodate new layout.
- Relocate existing data rack into staff room to accommodate new layout.
- Provide lighting and power for new basement storage within elevator addition.
- Provide new electric wall radiation with integral thermostats for new storage room.
- Provide / modify power, data and lighting systems for new childrens program room and meeting room adjacent to new elevator vestibule and machine room.

Elevator Addition Option

Costing

Elevator Addition		
Architectural	$382,300	
Structural	$79,500	
Mechanical	$3,400	
Electrical	$62,500	
		$527,700
Life Safety & Accessibility		
Architectural	$239,300	
Structural	$19,000	
Mechanical	$26,100	
Electrical	$20,500	
		$304,900
Functional Layout		
Architectural	$153,350	
Structural	$500	
Mechanical	$26,500	
Electrical	$16,900	
		$197,250
	Sub-Total	$1,029,850
	GC Mark-up @ 10%	$102,985
	Design Continuation @ 5%	$51,492
	Sub-Total	$1,184,327
	Bonding @ .75%	$8,882
	Probable Budget Costs	$1,193,209

(+/- 20% not including disbursements, additional recommendations)
(Prices are in December 2012 dollars)

Additional Recommended Requirements

Architectural / Structural

- The following surveys are recommended to be conducted to provide pertinent information to be used in the resolution and formalization of the design option: Complete pre-renovation hazardous materials survey, geotechnical survey and land survey.

Mechanical

- Provide ventilation for the entire building using a gas fired grade mounted air handling unit for compliance with ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality. The unit would also provide air conditiong to the building and some heating. The buildings existing heating system would still operate as the main heating source and the existing air conditioning unit mounted on main floor mezzanine would need to be removed.
  As the existing building condition has been 'grandfathered' this option is only a recommendation at this point. However, if the renovation to the existing building is deemed substantial enough by the authority having jurisdiction they may at that point determine that the existing building systems are required to be brought fully up to the current code. This report has proceeded under the assumption that this option will not be a requirement and is therefore not reflected within the previously identifed scope of work nor included within the probable budget costing. The following is a list of items that would be included, but not limited to, within the scope of work dedicated to the new ventilation system for the existing building.
  - Potential modifications to the proposed layout to accommodate new ductwork.
  - GWB bulkhead construction to conceal new ductwork.
  - Fire dampers for all ductwork penetrating required fire rated separations.
  - Structural concrete pad and foundations to support grade level AHU
  - Exterior wall & floor penetrations for new ductwork.
  - Electrical tie for controls to the new AHU

  Close collaboration with Heritage Winnipeg will be required as the new ventilation system will have a tremendous impact on the historical character of the building. The budgeted cost for this ventilation upgrade would be $91,000. This cost only represents the mechanical portion and does not reflect any ancillary costs associated with required architectural, structural or electrical. (This option has not been included within proposed budget costing.)

Summary & Recommendations

Summary & Recommendations

Two options have been presented in this report as means for providing universal accessibility into the existing historical Cornish library; an exterior ramp complete with interior lift system and a full functioning elevator addition. Both options have been shown to be plausible as well as feasible in over coming the obstacles presented and both would without a doubt provide the level of universal access to all the floor levels within the existing library as required to meet the accessibility needs of today.

However, when reviewing and assessing both options side by side each presents a different set of challenges and a different set of opportunities. These challenges and opportunities have been identified in the following point form summary and address elements such as cost, construction complexity, construction schedule, useability, aesthetic impacts, long term benefits and energy consumption, etc.

After careful review and assessment of both options, MCM Architects feels confident in our decision to recommend the full elevator addition option. Overall, it is the elevator option that will provide not only an increased level of accessibility but will have long term and functional benefits within the library and to all its users.

Summary & Recommendations

Ramp & Interior Lift System Option

- Less expensive option.
- Shorter duration and simpler construction schedule.
- Length of ramp to new accessible entrance is 84'-0". 7'-0" total rise from surrounding grade
- Main floor of library is always universally accessible. Ramp never shuts down.
- Snow and ice removal during the winter months will be required for the ramp surfaces.
- Lift system and universal washroom are located within main floor library space taking up valuable floor area.
- Lift system occupies a small section in one of the existing rooms within the basement leaving majority of existing spaces un-affected.
- Lift system has more restrictions and limited space in regards to load capacity and size of platform / cab.
- Does not alter or affect the existing buildings elevations to as great an extent as the proposed elevator addition does.
- Lift system uses considerably less energy than the elevator option to run without any additional interior spacesto heat and cool.
- Elderly and less mobile individuals could still experience difficulty when using the ramp due to its length and rise.

Elevator Addition Option

- More expensive option.
- Longer and more intensive construction schedule.
- Accessible entrance into elevator is at grade level.
- If elevator service is down, library will not be universally accessible.
- Only the path to the elevator entrance will require snow and ice removal.
- Elevator and universal washroom are located externally leaving existing main floor area relatively unaffected.
- Elevator vestibule to connect new addition to existing floor area sub-divides a large program space into two smaller rooms.
- Elevator offers more to the library in regards to servicing the needs of the library from one floor level to the other.
- Greater opportunity to play a dramatic and exciting role in the exterior aesthetics of the existing library.
- Greater amount of energy required to run the elevator as well as to heat and cool the new interior spaces.
- Easier for people of all ages and abilities to use.

Additional Recommendations

During the course of our many site visits and analysis of the existing building condition we would like to offer the following additional recommendations which should at some point be addressed in further detail.

- Existing windows are old and are showing their age. Replacement of the existing windows and proper sealing of new windows into the existing wall construction to ensure a tight weather proof seal is recommended.

- Exterior concrete support pad for the air conditioning condensers has settled and should be replaced with a level and stable pad.

- Areas of interior ceiling shows signs of possible mositure infiltration. Paint is peeling and areas appear to have been patched previously. Conduct a thorough review of the existing roofing system and attic condition to determine if additional evidence of moisture concerns exist.

Appendix

Appendix
Garaventa Lift System

GARAVENTA LIFT
Creating An Accessible World

Garaventa Wheelchair Lifts

GENESIS DESIGN AND PLANNING GUIDE

for lifting heights up to fourteen feet

www.garaventa.ca

What is a Vertical Platform Lift?

The Genesis Vertical Platform Lift is a cost effective way to transport persons who cannot or have difficulty using stairs, from one landing to another. The Genesis vertical platform lift provides a code compliant access solution for lifting heights of up to 4343mm (171") (check the regulations for your jurisdiction). With a variety of platform configurations, the Genesis is available as a 2 or 3 stop unit that can be operated independently or by an attendant. The Genesis is suitable for indoor or outdoor use and is available in a multitude of different colors and finishes so that it blends into any setting.

Why a Vertical Platform Lift?

Cost-effective

Vertical lifts are more cost-effective than an elevator and do not require a machine room to house the electrical and mechanical components.

Blends with Environment

A vertical lift is an attractive space saving alternative to a lengthy or winding ramp. Adjacent to stairs or in an area complimentary to your building, these lifts can be finished to compliment the aesthetics of the site.

Meets ADA Requirements (USA)

Garaventa vertical platform lifts are approved in the ADA Accessibility Guidelines as a means to provide public building access.

Design Assistance

With over 25 years of experience, Garaventa has the expertise to overcome almost any design challenge you face. Please call our Design Hot Line with your accessibility challenge.

1-800-663-6556 or +1-604-594-0422

Finishes

The standard finish is electrostatically applied and baked powder coat finish in Satin Grey for the steel panels and champagne anodized aluminum extrusions for the framework. As an option, these components can be painted from the large selection of RAL colors (a global paint color system). Alternatively, the Genesis enclosure can be supplied with 5mm (3/16") bronze tinted or clear Plexiglas panels or 6mm (1/4") laminated glass panels (supplied by others).

As an option Garaventa also offers Graphic Imaging and Exotic Finishes. Exotic finishes include brass and stainless effects created with special paint. Textured and speckled paint can be applied to the panels and extrusions. The panels can also be supplied with wood finishes, Formica, architectural metals or any material not exceeding 13mm (1/2") in thickness.

Outdoor Applications

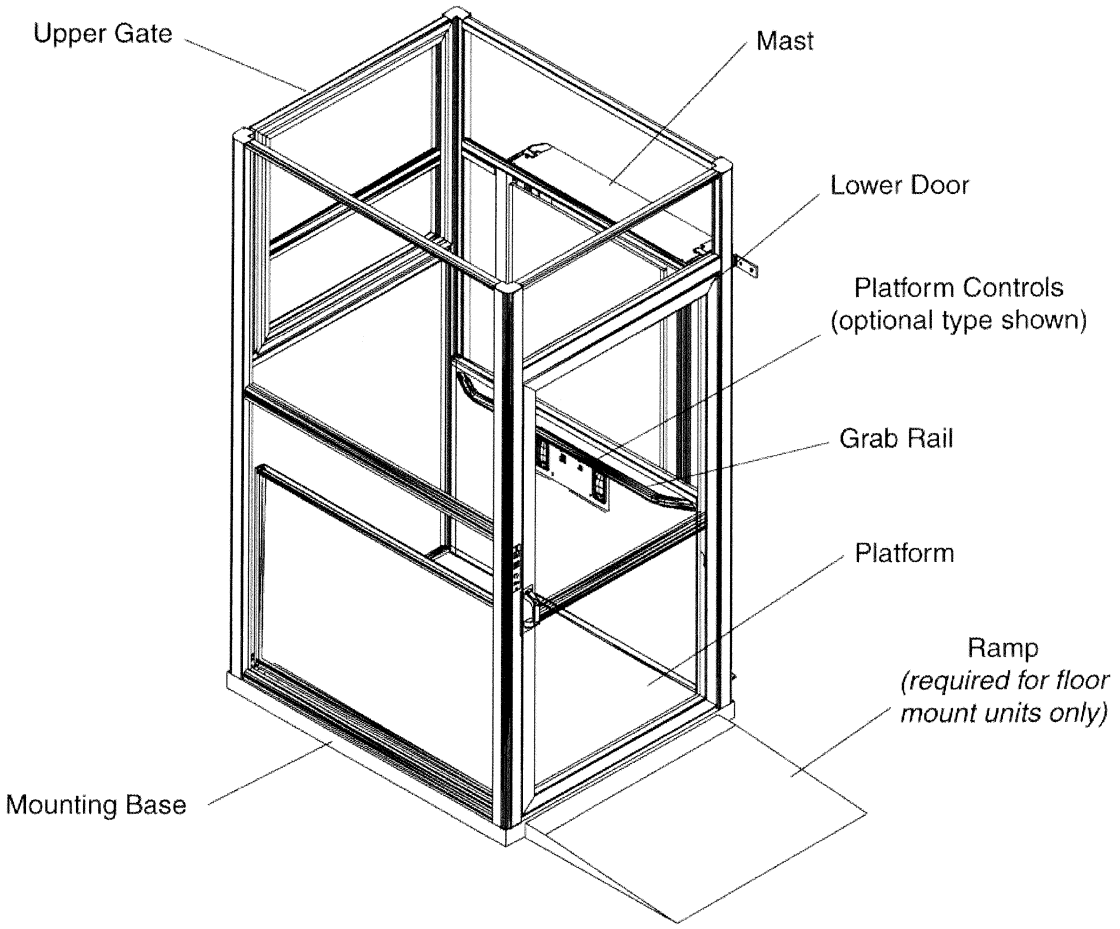
When located outdoors, the Genesis is modified to ensure durability and reliable performance. Included in the outdoor package are: hot dipped galvanized base, plated platform, galvanized mezzanine brackets, sealed electrical box, rubber boots on switches and stainless steel fasteners.

How it Works

The Genesis vertical platform lift is offered in a variety of configurations and styles for different accessibility challenges. All versions of the Genesis Vertical Lift operate in the same manner and consists of a complete drive system, a platform with side walls, doors with an interlock system and call stations.

The mast houses the electrical and mechanical components that raise and lower the cantilevered platform. The doors or gates cannot be opened unless the platform is at an appropriate landing. The platform is called to the landing by using the call stations located at each landing. Once at a landing, the door interlock is released and the door can be opened.

The Genesis can be used to provide access indoors or outdoors and can be installed directly on the floor or in a 76mm (3") deep pit.



Enclosure Model with Standard Straight-Through Configuration Shown

Enclosure Model vs. Shaftway Model

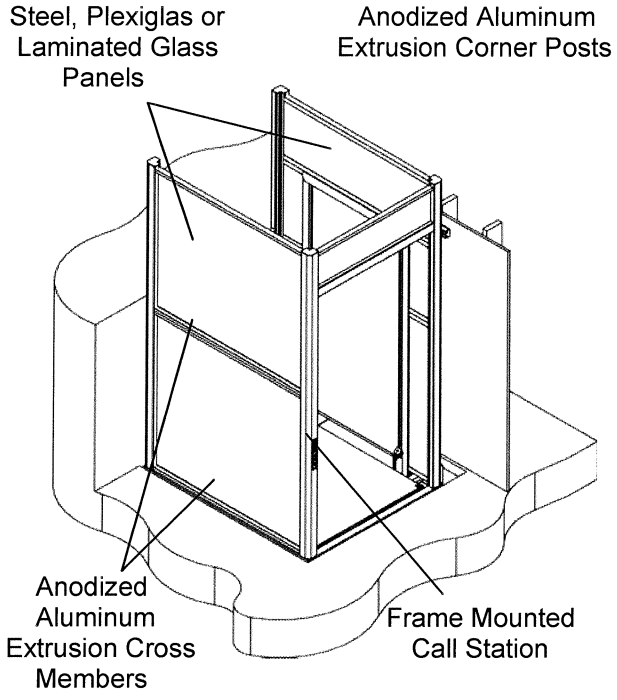
The Genesis is available in two styles, the Enclosure Model and the Shaftway Model. The Enclosure Model consists of a factory supplied mast, platform, doors and factory manufactured walls that enclose the lift. The Shaftway Model consists of a mast, platform and doors. The walls enclosing the lift are built by others using dimensions provided by Garaventa Lift.

Enclosure Model

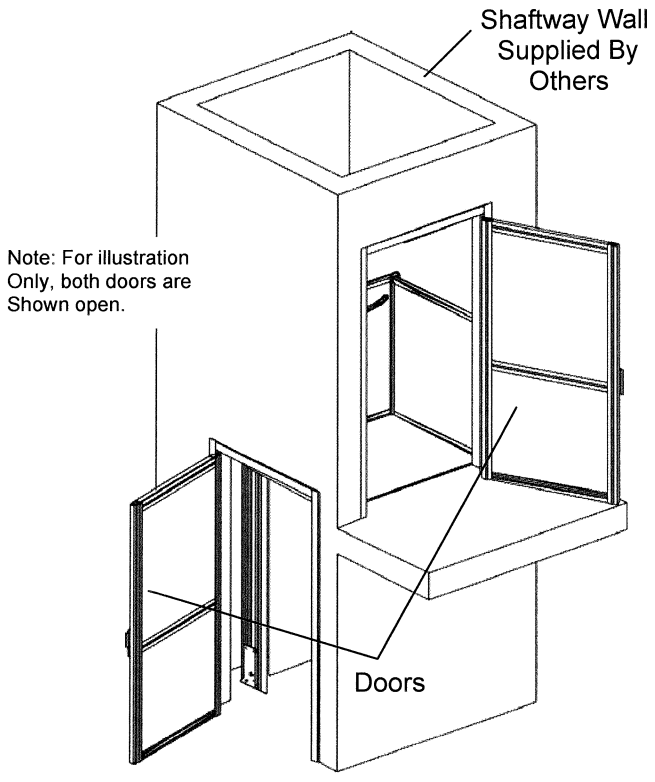
The enclosure frame is constructed of champagne color anodized aluminum extrusions. The attractive contoured corner posts allow the fasteners to be hidden and the vertical etched lines enhance the appearance of the lift. Horizontal cross members are fitted into the corner posts, securing the enclosure panels. The panels come in a choice of 16 gauge painted galvanized mild steel, 5mm (3/16") bronze tinted or clear Plexiglas or 6mm (1/4") laminated glass (by others). The Enclosure model is available in a number of optional finishes.

Shaftway Model (Hoistway Style)

The Genesis Shaftway unit is designed to fit the essential lift components within your shaftway walls. The Genesis Shaftway Model can have either aluminum frame doors/gates, fire rated steel doors, or the doors can be supplied by others. All styles of doors/gates have interlocks integrated with our control system.



Enclosure Model



Shaftway Model

Lifting Heights and Mast Sizes

The mast size required for a particular site is determined by the vertical travel required between the upper and lower landings. When the site is measured, **the lift height "H" is always defined as the distance from the surface at the lower landing (pit or floor) where the lift will sit to the upper landing fl oor** as shown in the diagram below. If the lift is to be mounted directly on the surface of the lower landing and an entry ramp is used, then "H" equals the elevation change between the upper and lower landings. If the lift is pit mounted, then the measurement "H" is 76mm (3") greater than the elevation change between landings. This measurement is crucial for your custom designed lift. Be certain the height you provide is accurate. We recommend using the "as built" dimension.

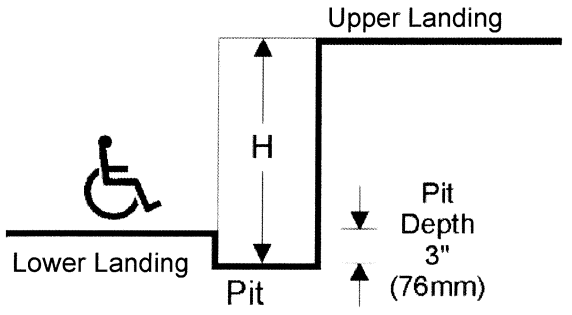
The width of the mast is 998mm (39 1/4") and is standard for all mast heights.

Based on the measured value of "H" the drive mast is selected as follows;

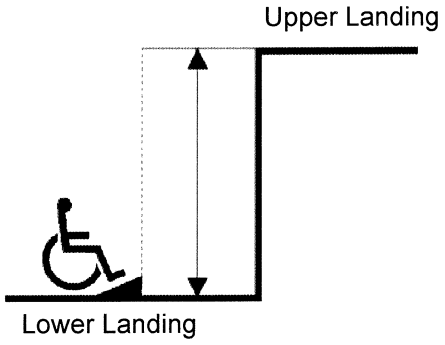
Mast Size	Max. "H" Value	Mast Structure Height	*Mast Tieback Height (see note below)
GVL - 42	1143mm (45")	1737mm (68 3/8")	1572mm (61 7/8")
GVL - 60	1600mm (63")	2194mm (86 3/8")	2029mm (79 7/8")
GVL - 72	1905mm (75")	2498mm (98 3/8")	2333mm (91 7/8")
GVL - 96	2515mm (99")	3108mm (122 3/8")	2943mm (115 7/8")
GVL - 120	3124mm (123")	3718mm (146 3/8")	3553mm (139 7/8")
GVL - 144	3734mm (147")	4327mm (170 3/8")	4162mm (163 7/8")
GVL - 168**	4343mm (171")*	4937mm (194 3/8")*	4772mm (187 7/8")

* For Shaftway units, a second Tie Back is required. Consult Garaventa.

** Hydraulic drive only and Split Mast standard with this height.



Pit Mount

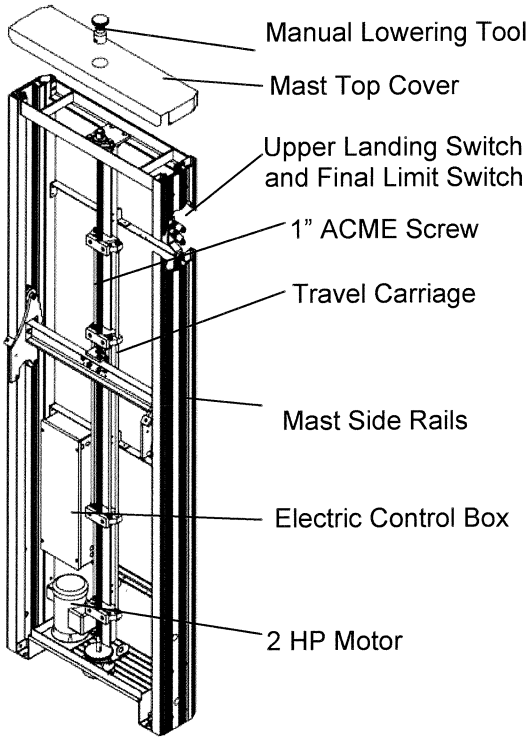


Floor Mount

Two stop lift in a pit and floor mount application. An optional three stop unit is also available.

Leadscrew Drive System

Single-phase 2 HP motor attached to a 1" ACME screw, the platform travels at 3 meters (10 ft.) per minute.



Mains Power Requirement:

North America
120 VAC single phase on a dedicated 20 amp circuit.

International
208 - 240 VAC single phase on a dedicated 16 amp circuit.

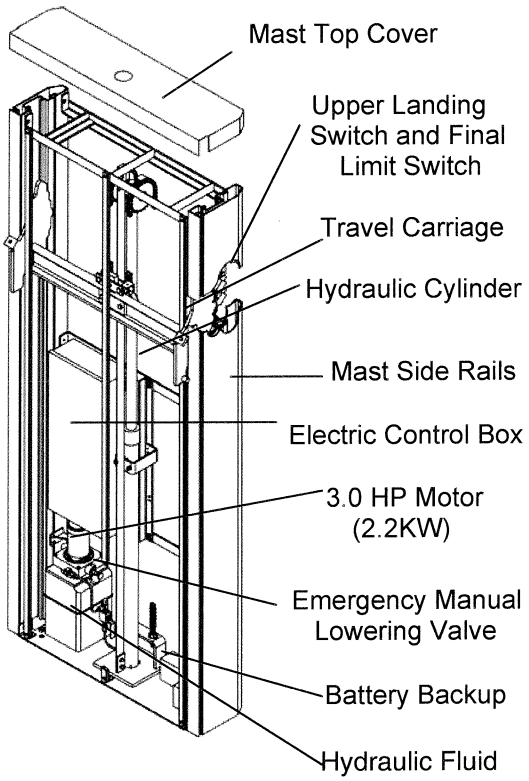
Electrical Disconnect (optional)
A code compliant electrical disconnect is supplied with the lift for both safety reasons and customer convenience. This disconnect shuts off the mains power and the 24V battery back-up system to the lift. For the Enclosure Model, the disconnect is located on the side of the mast closest to the lower landing door. For the Shaftway Model, the disconnect is located on the outside of the shaftway walls in a location determined by local code requirements.

Manual Lowering Handwheel (Lead Screw Model Only - standard)
The manual lowering handwheel has a black plastic handle and slotted shaft that engages a cross pin on the main drive screw.

Battery Powered Emergency Lowering (Lead Screw Model Only - optional)
The Genesis Leadscrew Model can be supplied with an optional battery-powered emergency lowering system which is automatically activated in the event of a power failure. Using the down directional control, the battery powered emergency lowering system lowers the platform at a speed of approximately 0.3m/min. (1 ft/min.).

Hydraulic Drive System

Single-phase 3 HP (2.2 KW), 24VDC hydraulic motor. continuous mains power and auxiliary power system. The lift connects directly to the building power. The power is reduced to 24 VC to operate the control system and drive the motor. The lift is equipped with an auxiliary power system that enables the lift to complete a minimum of 5 trips as required by code. The platform travels between landings at 5.2 meters (17ft.) per minute. ***Required for heavy use lifts or lifts equipped with a Fan and Ventilation System.**



Mains Power Requirement:

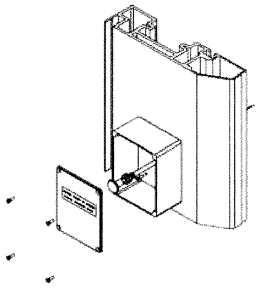
North America - 120 VAC single phase on a dedicated 15 amp circuit.
International - 208 - 240 VAC single phase on a dedicated 16 amp circuit.

Full Time Battery Operation (optional)

For very low use applications and basic units, full time battery operation is appropriate.

Electrical Disconnect (optional)

A code compliant electrical disconnect is supplied with the lift for both safety reasons and customer convenience. This disconnect shuts off the mains power and the 24V battery back-up system to the lift. The Enclosure Model disconnect is on the side of the mast closest to the lower landing door. The Shaftway Model disconnect is located on the outside of the Shaftway wall in a location determined by local code requirements.



Manual Lowering (Hydraulic Model Only - standard)

The manual emergency lowering device consists of a pull knob mounted in a box on the side of the mast. When used, the platform is lowered to the landing.

Split Mast (Hydraulic Drive Only - optional)

For installation sites where it would be difficult to place the drive mast into position as a single piece, the split mast option is available for GVL-120 and GVL-144. GVL-168 Hydraulic Models are supplied standard with a split mast.

Remote Drive Cabinet (Hydraulic Drive Only - optional)

For the ultimate in quiet operation, the drive system can be located up to 3 meters (10 feet) away in a remote drive cabinet.

Mast Heater (Hydraulic Drive Only - optional)

For outside installations where cold temperatures are a concern, a mast heater can be installed to protect hydraulic fluid from freezing.

Platforms

The platform is rated for a load of 340 kg. (750 lbs.) and has 1070 mm (42 1/8") high side walls. The side wall in front of the mast includes a grab rail and platform controls.

Clear inside dimensions vary depending on the entry/exit configuration and size of platform. For sizes and clear dimensions of an Enclosure Model please see page 29 and for the Shaftway Model pages 24-28.

Shaftway Platforms

The Genesis Shaftway Model has 4 platform sizes to meet your requirements:

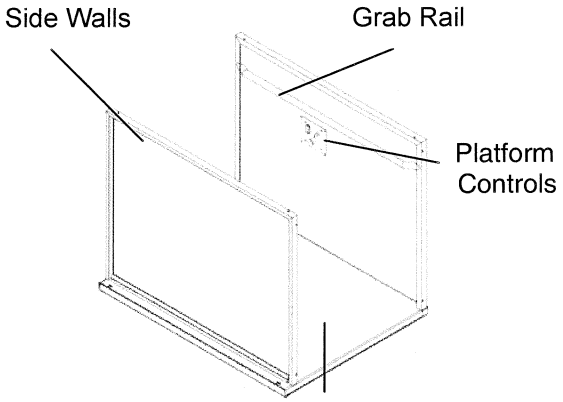
Compact - 914mm x 1257mm (36" x 49 1/2")
Standard - 992mm x 1370mm (39" x 54")
Mid-Size - 992mm x 1522mm (39" x 60")
Large - 1144mm x 1520mm (45" x 60")
* Custom available

Enclosure Platforms

The Genesis Enclosure Model has 3 platform sizes to meet your requirements:

Standard - 947mm x 1370mm (37 1/4" x 54")
Mid-Size - 947mm x 1522mm (37 1/4" x 60")
Large - 1099mm x 1522mm (43 1/4" x 60")

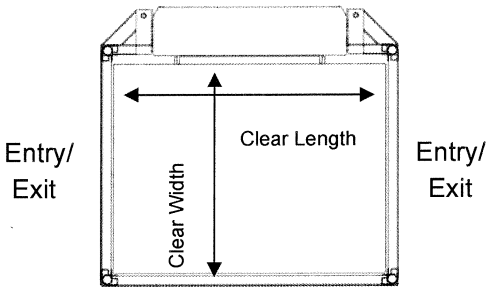
Platform sizes listed are based on a Straight through configuration.



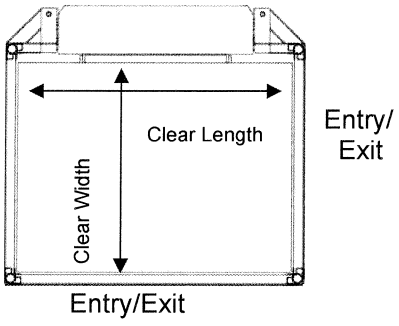
Platform Configurations

Entry/Exit Configurations

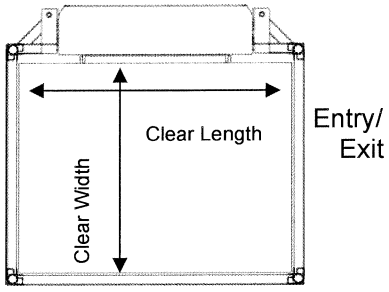
The Genesis is available in various entry/exit configurations. The lift can be supplied as a straight through (180°), a 90° (left or right exit) or an on/off same side (360°) lift configuration. Enclosure model configurations shown.



Straight Through (180°) Configuration



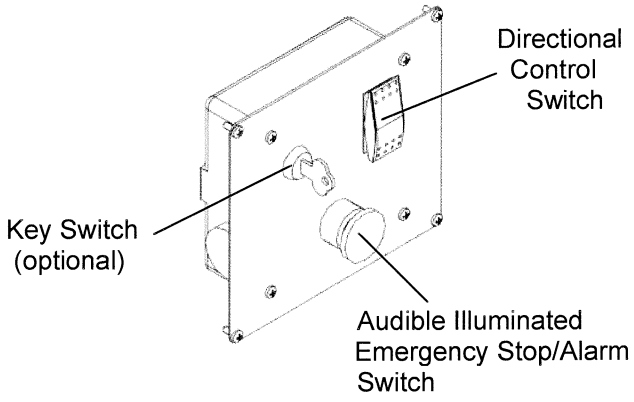
90° Configuration
(available with left or right enter/exit)



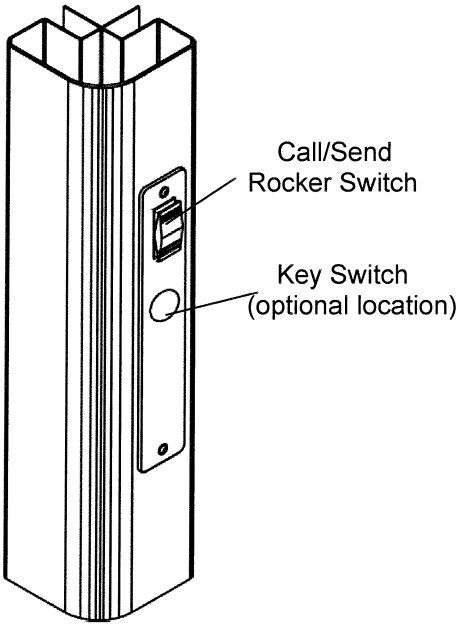
On/Off Same Side (360°) Configuration
(must have a lift height of 2253mm (88 3/4") or greater)
(available with enter/exit on either side)

Operating Controls

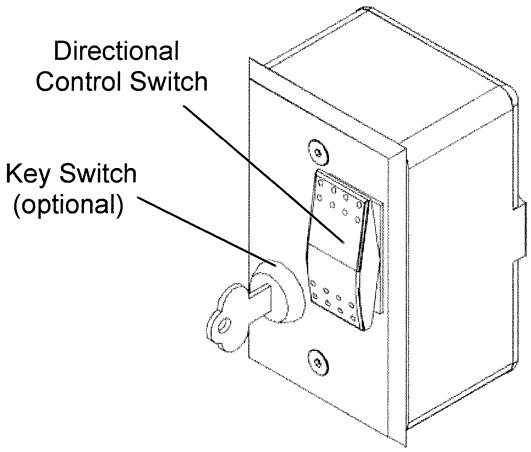
Rocker Style Switches (standard)
The Genesis vertical lift comes equipped standard with rugged indoor/outdoor constant pressure switches. The platform control panel comes standard with an Illuminated Audible Emergency Stop Switch. All controls can be fitted with an optional AEMA key switch.



Platform Controls



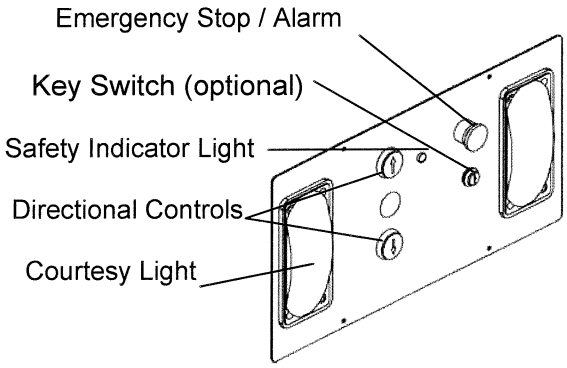
Rocker Type
Frame Mounted Call Station
(standard)



Wall Mounted Call Station
Used at Lower and/or Upper Landing

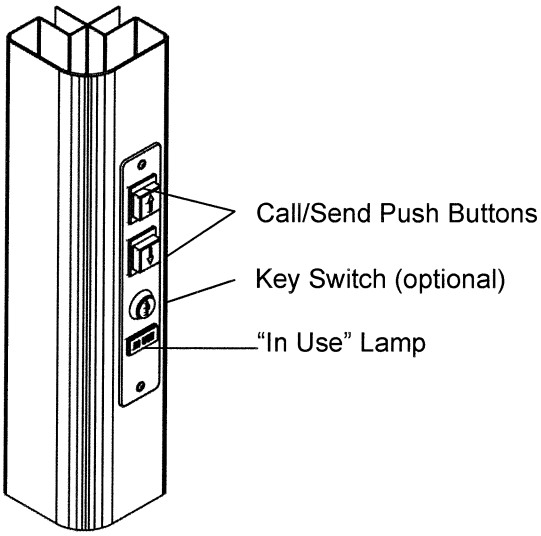
Operating Controls

Push Button Style (optional)
The lift can be equipped with illuminated and tactile push button directional control switches and platform courtesy lighting. Easy to use push button directional controls indicate direction of platform travel. Platform courtesy lighting remains illuminated for the duration of platform travel and for 10 seconds after the platform arrives at the landing.

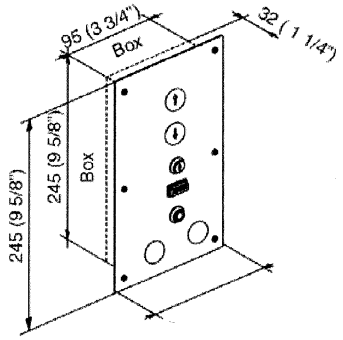


Push Button Style Platform Controls (optional)

Keyed Call Station and Platform Controls (optional)
To prevent the use of the lift by unauthorized personnel, the call stations and platform controls can be set up for keyed operation.

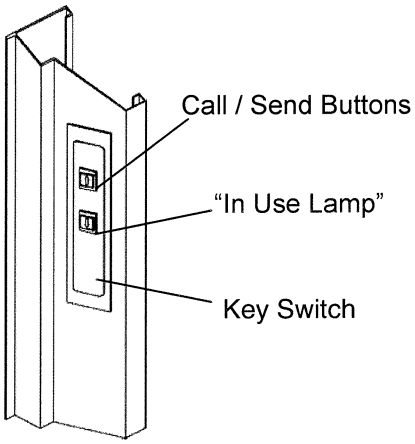


Push Button Type Frame Mounted Call Station (optional)



Call Station Face Plate Installed on Wall Mount Conduit Box Shown (optional)
**Surface Mount Call Station Dimension 250mm (9 ¾")L x 100mm(3 7/8")W x 23mm (7/8")D*

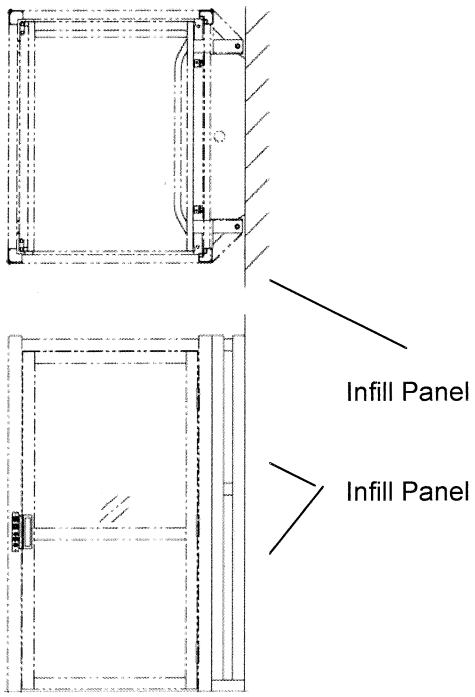
Shaftway Frame Mounted Call Stations: Fire Rated Doors
When a fire rated door is used the call stations are usually mounted in the steel frame of the door, similar to the Garaventa style door call stations. Can be ordered with wall mount call stations.



Frame Mounted Fire Door Call Station (optional)

Infill Panel Kits (optional)
(Enclosure Model Only)

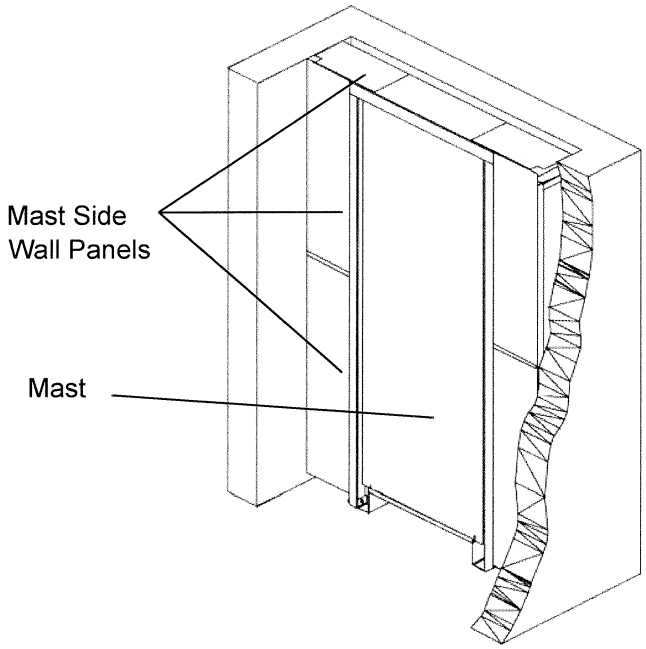
Custom infill panel kits are available to seal off the open space between the enclosure and the wall, next to the mast. The panel kit will enhance the overall appearance of the Genesis. The panel kit includes a frame and panels to fill the area.



Infill Panel Kit

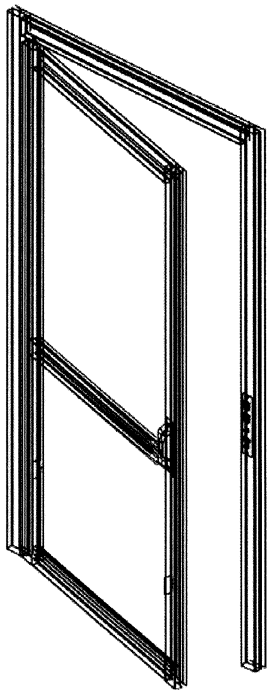
Mast Side Wall Panel Kits (optional)
(Shaftway Model Only)

Custom mast side wall panel kits are available to fill the open area on either side of the mast. The panel kit will enhance the overall appearance of the Genesis and seal off this open space. The panel kit includes the painted steel panels to fill the area between the mast and the inside of the shaftway wall.



Mast Side Wall Panel Kit

Garaventa Style Doors and Gates

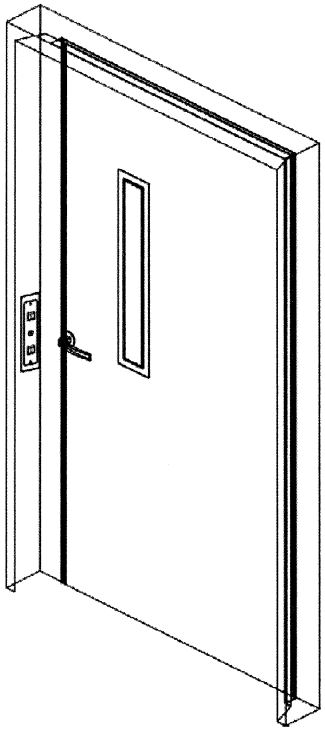


The Enclosure and Shaftway models utilize Garaventa style doors and/or gates. These non-fire rated doors and gates are prehung in a Champagne colored anodized aluminum extrusion frame. The doors and gates are constructed of matching aluminum extrusions with a powder coated 16 gauge galvanized steel kickplate and an upper panel (powder coated 16 gauge galvanized steel, bronze or clear Plexiglas, or laminated glass). Garaventa doors are equipped with an offset "D" handle. Custom finishes are also available as an option, please refer to page 2. This non-fire rated door and gate are an attractive alternative to the industrial looking fire rated door.

The door height is 2032mm (80") and the gate height is 1070mm (42 1/8") and are both available in 3 widths:

- 905mm (35 5/8")
- 1046mm (41 1/8")
- 1109mm (43 5/8") (for wide side 90° configurations)

Fire Rated Doors and Frames



The fire rated door and frame is completely prehung and is constructed of 16 gauge steel. The door is supplied with a vision panel and a delayed action door closer. The door has a 1 1/2 hour 'B' label fire rating with an integrated interlock system. This door comes standard with a frame mounted 2-button keyed call station.

The fire rated door and frame is available in both 906mm (35 5/8") and 1059mm (41 5/8") clear door widths. See the Door Layouts and Clearances section on pages 20-23 for further door and door swing dimensions.

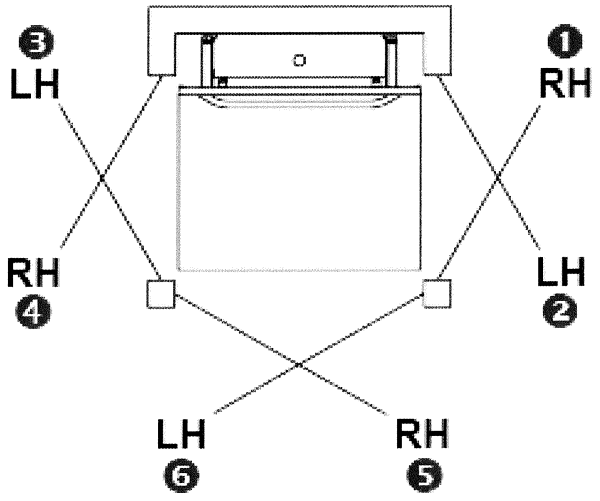
Locks

Garaventa Mechanical Interlock (standard on Genesis Enclosure Model)
The Garaventa Mechanical Interlock is the standard lock used for two stop enclosure lifts that are equipped with Garaventa doors and gates. Activated by the movement of the platform, the lock is monitored by the safety circuit to ensure the door or gate is properly locked. If the door or gate is not properly locked the lift will only be able to travel 50mm (2") out of the landing.

Powerlock 2000 (CSA Certified)
(standard on Genesis Shaftway Model equipped with Garaventa Door/Gates)
The Powerlock 2000 is the lock used in Shaftway units with Garaventa doors/gates, and are optional for Genesis Enclosure lifts. The Powerlock 2000 is a 24 VDC solenoid powered interlock that is monitored by the safety circuit to ensure the Garaventa door/gate is properly locked.

Locks by Others
Garaventa lifts can be configured to accept interlocks or strikes by others, typically found in fire doors. Consult your local Garaventa representative for more information.

Door Swings

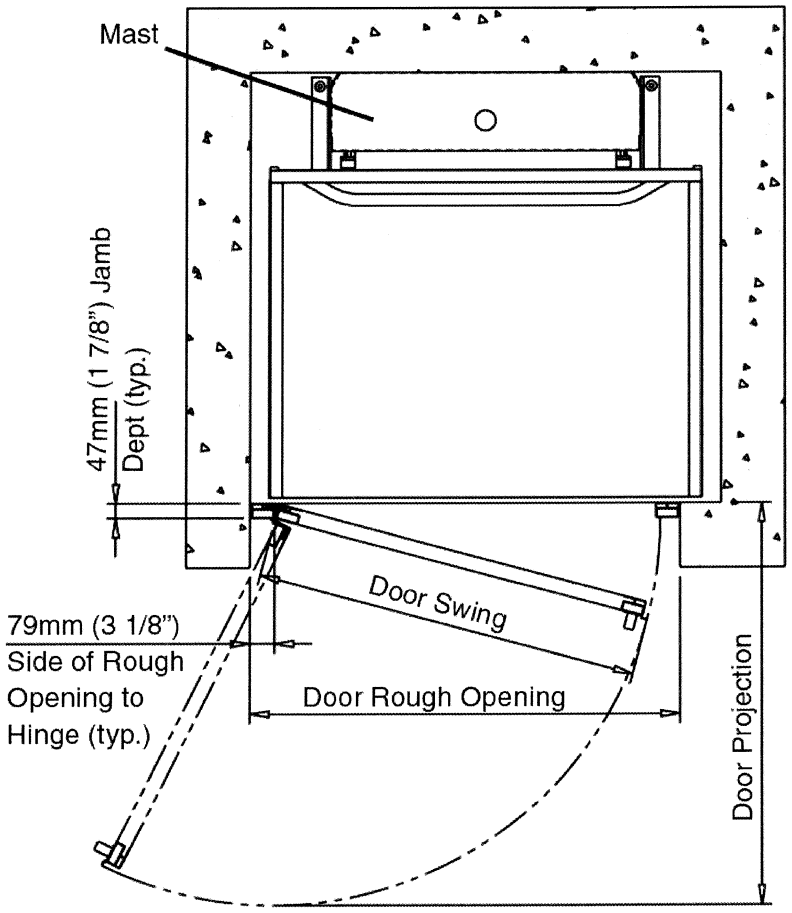


Gate Positions & Swing Options

Garaventa Style Doors,
On/Off Same Side (Entry/Exit Opposite to Mast)

Door	Door Width	R/O* Width	R/O* Height	Door Swing	Door Projection
36"	905mm (35 5/8")	1098mm (43 1/4")	2125mm (83 3/4")	926mm (36 1/2")	982mm (38 5/8")
42"	1046mm (41 1/8")	1240mm (48 7/8")	2125mm (83 3/4")	1067mm (42")	1123mm (44 1/4")
44"	1109mm (43 5/8")	1302mm (51 1/4")	2125mm (83 3/4")	1104mm (43 5/8")	1162mm (45 3/4")

R/O* is Rough Opening

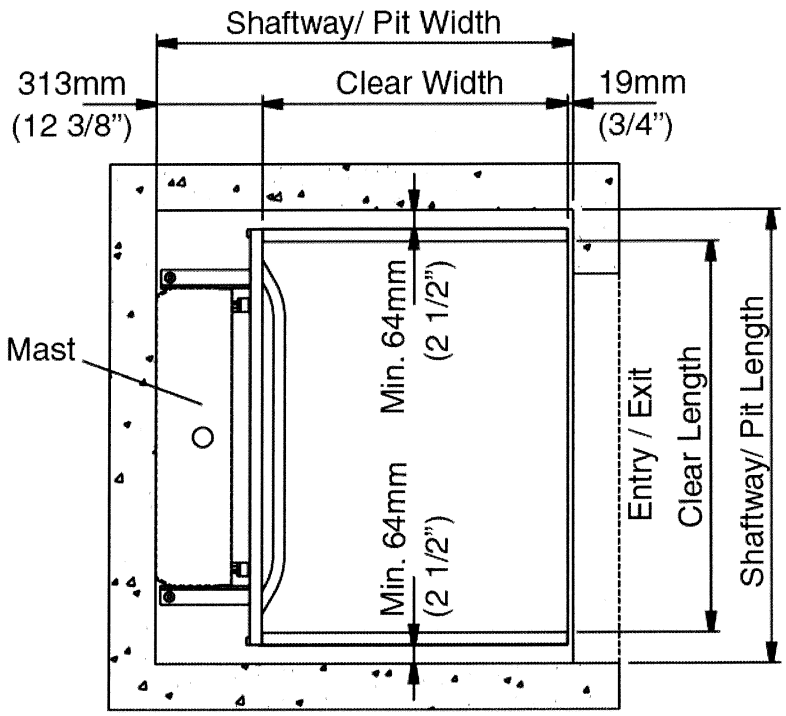


Dimensions are provided for reference only. Submittal drawing dimensions should be used for site preparation and construction.

Shaftway/Pit and Platform Clear Dimensions, On/Off Same Side (360°) Entry/Exit Opposite Mast

Platform Size	Shaftway/Pit Width	Shaftway/Pit Length	Clear Width	Clear Length	Net Usable Area
Compact	1272mm (50 1/8")	1337mm (52 7/8")	940mm (37")	1159mm (45 5/8")	1.09sq.m. (11.72 sq. ft.)
Standard	1350mm (53 1/8")	1448mm (57")	1017mm (40")	1271mm (50")	1.29sq.m. (13.91 sq. ft.)
Mid-Size	1350mm (53 1/8")	1600mm (63")	1017mm (40")	1422mm (56")	1.45sq.m. (15.57 sq. ft.)
Large	1502mm (59 1/8")	1600mm (63")	1169mm (46")	1422mm (56")	1.66sq.m. (17.90 sq. ft.)

- Add 38mm (1 1/2") to pit width if a tie-back rail is used. Two (2) tie-back rails required.
- 63 1/2mm (2 1/2") running clearance dimension is included on non entry exit sides
- 19mm (3/4") running clearance dimension is included on entry / exit sides
- **Shaftway units require (4) tie-back locations. Consult local Dealer or Garaventa for tie-back locations.**



Recommended Pit Depth 3" (Minimum)

Drawings and Dimensions are provided for reference only. Submittal drawing dimensions should be used for site preparation and construction.

Lead Screw Drive System: Technical Reference of Features

Platform Sizes:

Standard Enclosure Platform:	947mm x 1370mm (37 1/4" x 54")
Optional Enclosure Platform:	947mm x 1522mm (37 1/4" x 60") - Mid-Size
	1099mm x 1522mm (43 1/4" x 60") - Large
Standard Shaftway Platform:	992mm x 1370mm (39" x 54")
Optional Shaftway Platform:	914mm x 1257mm (36" x 49 1/2") - Compact
	992mm x 1522mm (39" x 60") - Mid-Size
	1144mm x 1522mm (45" x 60") - Large

Rated Load:

340 kg (750 lbs), with a safety factor of 5

Drive System:

Mains Power:	120 VAC single phase on a dedicated 20 amp circuit. Outside North America 208-240 VAC single phase on a dedicated 16 amp circuit.
Drive Type:	ACME screw (1" diameter)
Motor:	2 HP, AC Motor. Variable frequency control for smooth start and stop.

Speed:

3 meters (10 ft) per minute at full load

Operating Controls:

Keyed Controls:	Keyswitch on call stations and platform controls (optional)
Directional Controls:	Continuous pressure switches
Control Voltage:	24 VDC

Safety Features:

Safety Nut:	Safety nut automatically engages if drive nut fails. Platform falls less than 13mm (1/2") when safety nut engages. Engaging safety nut trips the safety circuit.
Door Interlocks:	Enclosure Model: Mechanical lock with electric contact prevents door from opening unless platform at landing. Shaftway Model: Solenoid powered deadbolt with monitoring circuit. Deadbolt fails in the locked position in the event of power failure. Battery backup provided.
Emergency Stop:	Stops platform travel and sounds audible alarm.
Emergency Operation:	Equipped standard with a manual lowering wheel. Optional battery powered lowering system available.

Finish:

Enclosure Frame & Drive Mast:	Anodized aluminum
Platform Sidewalls & Drive Mast Cover:	Baked powder finish on 16 gauge galvanized steel panels – RAL color #7030 (Fine Textured Satin Grey).
Enclosure Sidewalls and Doors:	Baked powder finish on 16 gauge galvanized steel panels – RAL color #7030 (Fine Textured Satin Grey) or optional 5mm (3/16") thick clear or bronze tinted Plexiglas.
Optional Finishes:	Extrusions and panels can be painted any color in the RAL chart.

Hydraulic Drive System: Technical Reference of Features

Platform Sizes:

Standard Enclosure Platform:	947mm x 1370mm (37 1/4" x 54")
Optional Enclosure Platform:	947mm x 1522mm (37 1/4" x 60") - Mid-Size
	1099mm x 1522mm (43 1/4" x 60") - Large
Standard Shaftway Platform:	992mm x 1370mm (39" x 54")
Optional Shaftway Platform:	914mm x 1257mm (36" x 49 1/2") - Compact
	992mm x 1522mm (39" x 60") - Mid-Size
	1144mm x 1522mm (45" x 60") - Large

Rated Load:

340 kg (750 lbs), with a safety factor of 5

Drive System:

Mains Power:	120 VAC single phase on a dedicated 15 amp circuit. Outside North America - 208-240 VAC single phase on a dedicated 16 amp circuit.
Drive Type:	Chained Hydraulic (Dual 5/8" ANSI 50 chains)
Standard Motor:	3 HP Motor: Continuous mains power and auxiliary battery power
Optional Power Supply:	3 HP Motor: 24 VDC from battery system, continuously charged by buildings mains power.

Speed:

5.2 meters (17 ft) per minute at full load

Operating Controls:

Keyed Controls:	Keyswitch on call station and platform controls (optional)
Directional Controls:	Continuous pressure switches
Control Voltage:	24 VDC

Safety Features:

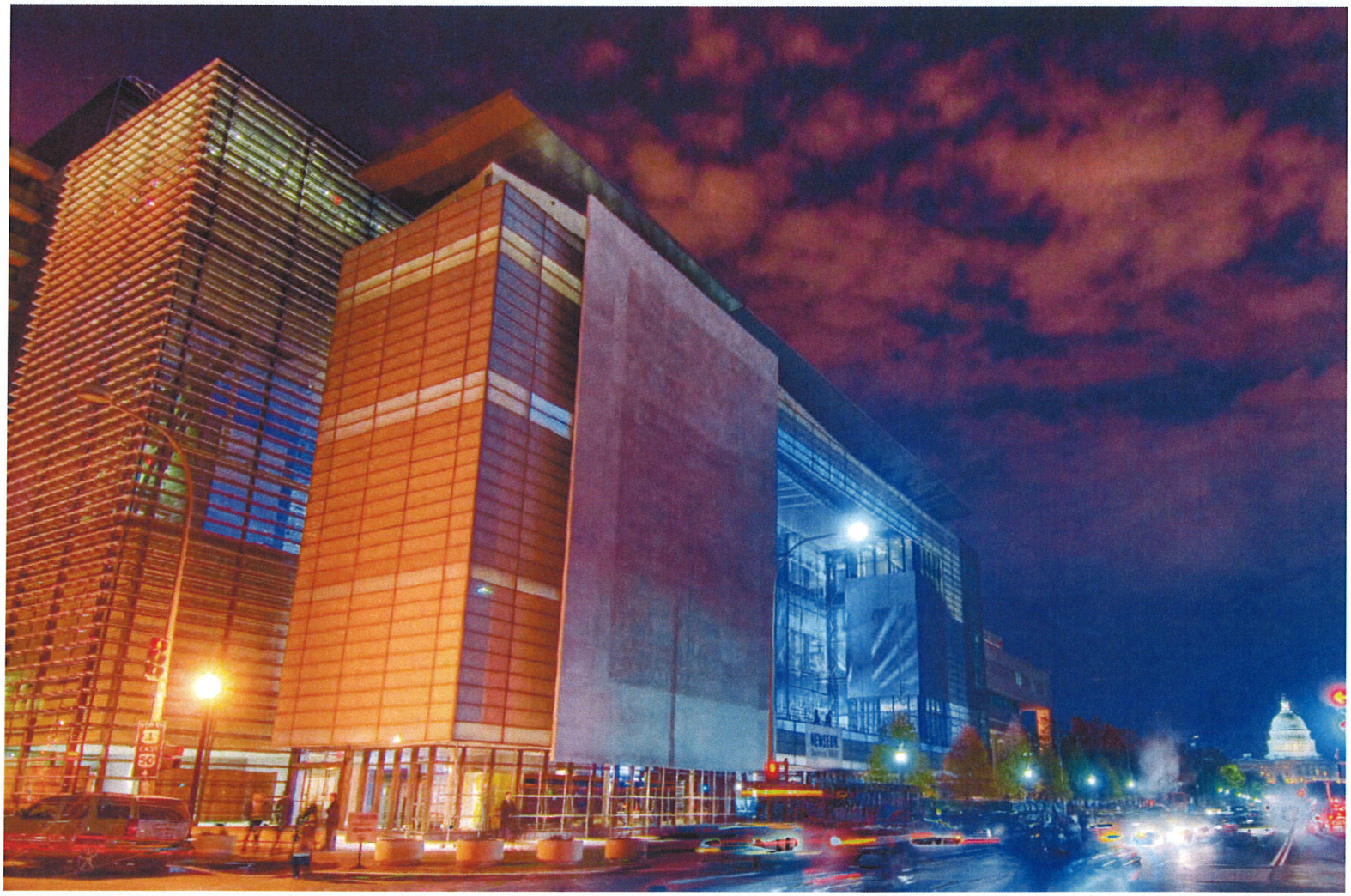
Safety:	Monitored slack chain device. Automatically engages if the drive chain fails. The platform falls less than 13mm (1/2") when the slack chain safety device engages.
Door Interlocks:	Enclosure Model: Mechanical lock with electric contact prevents door from opening unless platform at landing.
	Shaftway Model: Solenoid powered deadbolt with monitoring circuit. Deadbolt fails in the locked position in the event of power failure. Battery backup provided.
Emergency Stop:	Stops platform travel and sounds audible alarm.
Emergency Operation:	Auxiliary Power System operates the lift in up and down direction.

Finish:

Enclosure Frame & Drive Mast:	Anodized aluminum
Platform Sidewalls & Drive Mast Cover:	Baked powder finish on 16 gauge galvanized steel panels – RAL color #7030 (Fine Textured Satin Grey).
Enclosure Sidewalls and Doors:	Baked powder finish on 16 gauge galvanized steel panels – RAL color #7030 (Fine Textured Satin Grey) or optional 5mm (3/16") thick clear or bronze tinted Plexiglas.
Optional Finishes:	Extrusions and panels can be painted any color in the RAL chart.

Appendix
Otis Elevator System

OTIS



ELEVATOR PLANNING AND SELECTION GUIDE

SELECTION PROCESS

HYDRAULIC ELEVATORS

GEN2® MACHINE-ROOMLESS ELEVATOR

FREIGHT ELEVATORS AND MOVING WALKS

ESCALATORS, FINISHES AND FIXTURES

Otis...the global leader in elevator and escalator systems

Planning and design programs to meet every need

Before You Begin:

Otis Elevator Company, the world's leading manufacturer of elevator and escalator systems, meets the most rigid demands of planning, building and design professionals. We offer you two easy-to-use planning and selection guides:

- Architect's Assistant – Available on Otis.com. This simple, online plug-and-play program will generate customized CSI specifications and CAD drawings. It will help you design and build an elevator that meets building specification and code requirements
- Our E-Z Elevator Selection Process

These two distinct planning and selection tools are designed to help you meet the most demanding project requirements quickly and cost-effectively.

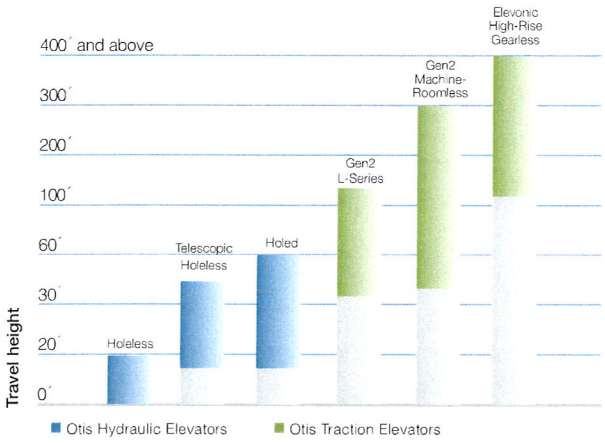
Otis E-Z Elevator Selection Process

Step 1: Travel Height

- Selecting the optimal elevator type for your project depends upon the elevator travel distance
- The chart below identifies Otis elevators most commonly selected for specific travel heights (see product pages in this guide for other criteria):

Elevator Selection Chart

Use this chart to determine which elevators are applicable for specific travel heights. Colors indicate recommended range of minimum and maximum travel height.



Step 2: Elevator Quantity and Size

- These are determined by floor population, building use or building type and national and local codes. Consult with your local Otis representative to have a professional study performed using OtisPlan and Elevatoring Tool

Refer to Architect's Assistant at Otis.com for additional help in selecting proper size and number of elevators.

Step 3: Hoistway Requirements

- To accommodate heavier reinforcements to rails in seismic zones 2 or greater, additional hoistway space is required

Assess specific requirements by reviewing individual product pages in this guide.

Step 4: Machine/Control Room Requirements

Hydraulic Systems

- Separate machine room required at bottom landing
- Machine room can be located remotely or adjacent to hoistway at bottom landing

Gen2 Machine-Roomless System

- Requires separate control closet/room
- Flexible control closet/room placement—up to 250 feet away from top of hoistway (depending on wiring configuration within the building)

Required dimensions will be found on specific product pages in this guide. Consult your Otis representative for specific requirements.

Step 5: Car Design and Finishes

- Otis offers flexibility in designing and selecting car walls, ceilings, lighting, handrails, bumper rails and fixtures

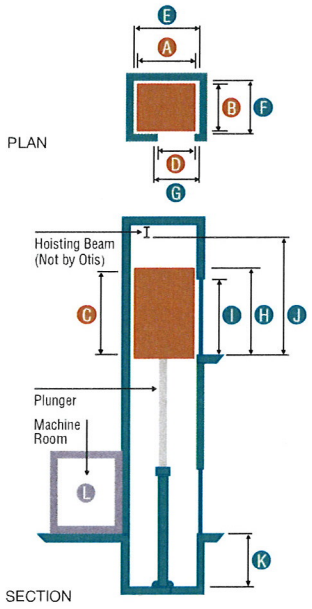
See page 11 for additional information.

Holeless Hydraulic

Travel Height
– Maximum 20 ft
Maximum stops 3
Speed (ft/min) 100, 125

Key Attributes

- No need for well hole drilling and its associated costs
- Above-ground solution substantially reduces risk of soil and ground water contamination
- Applicable for:
  - Hazard-sensitive sites
  - Waterfront sites
  - Existing buildings
- Available in both passenger and service elevator configurations and capacities
- Solid-state starter improves performance through precise control of electric current
- Optional:
  - Front and rear entrances
  - Ceiling height of 9′-7″
  - 8′-0″ clear opening
  - Glassback
  - REM® remote elevator monitoring



Dimensions Passenger elevators | Service elevators

Rated lbs.	2000	2100	2500	3000	3500	4500	5000	5000 A/A
Passenger Capacity[1]	13/12	13/12	16/15	20/18	23/21	30/28	33/31	33/31
Car[2]								
A Interior width	5′-8″	5′-8″	6′-8″	6′-8″	6′-8″	5′-8″	5′-11″	5′-8″
B Interior depth	4′-3″	4′-3″	4′-3″	4′-9″	5′-5″	7′-11″	8′-6″	9′-0″
C Interior height	8′-0″ (Optional 9′-7″)							
D Car door width	3′-0″	3′-0″	3′-6″	3′-6″	3′-6″	4′-0″	4′-6″	4′-0″
Hoistway								
E Width	7′-4″	7′-4″	8′-4″	8′-4″	8′-4″	7′-7″	8′-4″	7′-7″
Width in seismic zones[3]	7′-6″	7′-6″	8′-6″	8′-6″	8′-6″	7′-7″	8′-4″	7′-7″
F Depth[4]	5′-9″	5′-9″	5′-9″	6′-3″	6′-11″	9′-8″	10′-3″	10′-9″
G Rough opening width	4′-8″	4′-8″	5′-2″	5′-2″	5′-2″	5′-8″	6′-2″	5′-8″
H Rough opening height	7′-10″							
I Clear opening height	7′-0″ (Optional 8′-0″)							
J Clear overhead to hoist beam								
@ 100 ft/min	12′-4″	12′-4″	12′-4″	12′-4″	12′-4″	12′-4″	12′-5″	12′-4″
@ 125 ft/min	12′-7″	12′-7″	12′-7″	12′-7″	12′-7″	12′-7″	12′-8″	12′-7″
K Minimum pit depth[5]	4′-0″ (5′-0″ for Canadian Province of Ontario)							
Machine Room								
L Number of elevators in group	1		2		3		4	
Width x depth	5′-9″ x 7′-4″		11′-6″ x 8′-6″		17′-0″ x 8′-6″		22′-0″ x 8′-6″	

[1] Capacity code requirements: US/Canada.

[2] Interior dimensions may vary depending on interior finishes.

[3] In seismic zones 2 or greater.

[4] For cars with front and rear doors, add 5⅞″ to depth for 2000 to 3500 lb. capacities; add 8¾″ for 4500 and 5000 lb. capacities.

[5] Pit depth changes based on speed: For 100 fpm, pit depth increases 1″ in depth for each 1″ increase in rise over 13′-7″ up to 20′-0″.

For 125 fpm, pit depth increases 1″ in depth for each 1″ increase in rise over 12′-8″ up to 20′-0″.

Office Locations

United States

Alabama	Birmingham	(205) 982-8000
	Mobile	(251) 433-0034
Alaska	Anchorage	(907) 278-4575
Arizona	Phoenix	(602) 431-1181
Arkansas	Fayetteville	(479) 521-5750
	Little Rock	(501) 312-7600
California	Anaheim	(714) 758-9593
	Los Angeles	(323) 342-4500
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	San Francisco	(415) 546-0880
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	San Juan	(787) 765-4969

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