

APPENDIX B – ST JOHN’S LIBRARY REFURBISHMENT STUDY



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Facility Refurbishment Study

Accessibility, Life Safety & Functional Layout

St. John's Library

500 Salter Street



December 21, 2012

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Abstract

Accessibility and universal design were unheard of concepts back in 1915 when the existing St.John's library was constructed. Even the building codes at the time of construction were a far cry from the standards required in today's 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 St.John's library.

Introduction

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

When the St.John's 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 St.John's 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 today's standards, codes and practices.

Scope of Work

In order to formulate an objective analysis regarding accessibility, universal access and life safety for the existing St.John's, 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 Standards to confirm applicable building code and universal accessibility requirements.
- 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 16, 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 St. John's 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 analyze 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, St. John's 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 6'-0" above the city sidewalk elevation with the only access to the buildings floor levels via an exterior grand stair and then interior sets of stairs. The existing structure includes a concrete foundation and basement walls, load bearing masonry walls on both the interior of the basement and throughout the main floor. The floor system in 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 St' John's Library.

A number of options were present and all were well received with no major concerns from Heritage Winnipeg. The following guidelines 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 necessary, 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.

St. John's Library

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Community Review - Public Open House

A public open house / community review was held at Win Gardner Place on Tuesday July 24, 2012 to allow the community access to view the proposed accessible options for the St.John's 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 really like that our little library is getting updated. I think the ramp plan is far superior to the elevator plan. The lift is using existing space and the children and adult reading / computer areas are divided. Both far superior / good ideas. Having programs offered in the basement, the larger room is needed rather than 2 smaller rooms"

"I like the lift plan because the kids area upstairs is larger and the program room is larger. I also like the more bathrooms. Is it possible to reverse the basement lift plan to keep the large program room and put in the elevator? Is there a way to put stroller storage under the ramp? I love my library, love the staff."

Existing Building Life Safety & Accessibility Analysis

Existing Building Life Safety & Accessibility Analysis

Life Safety and Accessibility analysis for the St.John's 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 Design
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 may 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 should 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.

Existing Building Building Code Review

Article 3.1.2. Major Occupancy Classification

- Major Occupancy: *Group 'A', Division '2', Assembly*
- Building Area: 320 sq.m.
- Number of Storeys: One + Basement
- Facing Streets: Two
- Construction: Combustible & Non-combustible

Article 3.1.17. Occupant Load

- Basement Floor: Program Room 60 (posted occupancy)
Mens / Womens W/C 2 (1 per each)
- Main Floor: Entire Floor Area 72 (3.70 sq.m. per occupant)
- Total Existing Building Occupant Load: 134

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 assembly. Existing supporting walls are concrete and masonry which, meet the rating requirements.

Existing Building Building Code Review

Article 3.4.2.1. Minimum Number of Exits

- *(1) Two exits are required from main floor and basement floor areas. Main floor only served by one exit. Two existing exits are provided from the basement floor area, however, existing exit construction does not comply with the code requirements for exits and is accessed through the buildings mechanical service room which is not permitted by code.*

Article 3.4.3.4. Headroom Clearance

- *(1) Every exit shall have a clear height of not less than 81". Existing mechanical piping crosses over both sets of stairs up from basement floor and falls below the required clearance dimension.*

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 rating not less than 45 minutes. Existing exit doors and glazing within doors are not fire rated and therefore do not meet the requirements for doors acting as part of a fire separation. Fire resistance rating for all existing wall constructions cannot be confirmed, however, where walls are masonry or concrete it is assumed 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.*
- *(8) Storage rooms, washrooms, toilet rooms, laundry rooms and similar ancillary rooms shall not open directly into an exit. Existing storage room window directly connected to existing West exit stair is infilled with wood however this does not meet requirements for a fire rated separation. Existing storage room is also open and technically considered as part of the mechanical service room.*

Existing Building Building Code Review

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 main floor have only 2 risers up from the main entry vestibule landing.

Article 3.4.6.4 Handrails

- *(1) Hand rails are required on both sides of all stairs and ramps regardless of width.* No handrails are provided on West exit stair or stairs up from large program room. One handrail only provided on exterior entry stairs. 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 interior stairs have a typical riser height of 7 1/2" which exceeds the maximum required dimension. Exterior stair risers are 7" high which complies with the code requirements.

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 doors at top of stairs up from the basement at set directly at the top step.
- *(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.* All existing exit doors current open in the direction of path of travel.

Existing Building Building Code Review

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**. 3 water closets are required for females and 2 water closets for males. Existing provides only 1 for both male and female occupant use and another 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.:*

Existing Building Building Code Review

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 existing doors into the washrooms and data room in the basement do not meet 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.

Interior Fire Separations



Image 1



Image 2

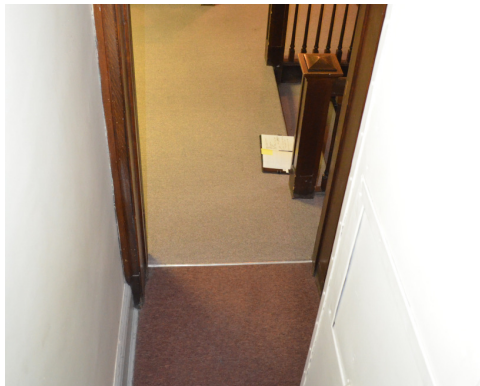


Image 3

Main Floor

- The existing main entry vestibule functions as a shared exit from both the main and basement floor areas. Exits are required to be separated from the remainder of the floor areas with a fire rated separation. The existing interior vestibule doors accessing the main floor area are required to form part of this fire rated separation. The existing vestibule doors are fully glazed and not fire rated. Image 1
- Floor construction between main and basement floor areas are 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.

Basement Floor

- Existing exit stairs from the basement floor area up to the main floor entry vestibule are open to the remainder of the floor area. As required by code all exit stairs are to be separated from the remainder of the floor area with a fire rated separation. This would involve enclosing the two stairwells completely and providing two new fire rated doors at the basement floor level. This would dramatically alter the existing spatial qualities within the basement and it is therefore recommended that this existing condition be further discussed and reviewed with the local authority having jurisdiction. Image 2
- Metal stairs around dumbwaiter connecting the main and basement floor areas are required to have a fire rated separation from the adjacent floor area. Existing wall construction appears to be masonry so it is assumed to meet the requirements for a fire rated separation, however the existing door and frame are not fire rated. Image 3

Interior Fire Separations



Image 1

- Mechanical rooms and service spaces are required to be separated from the remainder of the floor area with a fire rated separation. Existing wall construction appears to be masonry so it is assumed to meet the requirements for a fire rated separation, however the existing door and frame are note fire rated.

Image 1

Doors & Door Hardware



Image 1



Image 2



Image 3

Main Floor

- Existing doors within main entry vestibule accessing the basement stairs form part of the rated exit enclosure and are required to be fire rated and have door release hardware installed. Existing doors are not fire rated and no door release hardware has been provided. The existing doors are directly over the top step. By code a landing is required at the top of the stairs, however, due to existing conditions the creation of a truly code compliant landing at the top of the stairs is not achievable. It is therefore recommended that this existing condition be further discussed and reviewed with the local authority having jurisdiction. Image 1
- Doors separating main floor library space from main entry exit vestibule are required to be fire rated and be complete with door release hardware. Any glazing within the doors is required to be fire rated glass. Existing doors are fully glazed and are not fire rated. Door release hardware has not been provided. Image 2
- Main entry doors are in poor shape and falling apart making operation of doors difficult. As these are exit doors they need to function properly and be equipped with door release hardware. Image 2
- Existing main entry exterior doors open directly onto a step which is not permitted by code. Minimum 2'-0" space required between door swing and first riser. Image 3

Basement Floor

- Doors into mechanical room and metal stair case / dumbwaiter are required to be fire rated.

Access to Exit & Egress

Main Floor



Image 1



Image 2



Image 3

- Two means of egress from the main floor area are required by code for a building of this size and occupancy. Only means of egress from the main floor area is currently through the main entry doors.
- Handrails are required by code to be installed on both sides of all stairs. Existing exterior entry stairs only have a single non-compliant handrail installed along the exterior side of the stair. Image 1
- Height of guardrails at the top and intermediate landings on the exterior main entry stairs do not meet the height requirement of 42" for guardrails. Existing guardrail height is only 30". Image 1
- Existing exterior stairs have a contrasting abrasive nosing strip on every tread and landing. Stairs appear to still be in good condition. Image 2
- Interior stairs leading from main entry vestibule up to main floor area of library have only two risers. A minimum of 3 risers are required by code for any interior stair. Riser height is 7 1/2" which exceeds the permitted riser height of 7". Handrail has only been provided on the north side of the stair and does not meet the requirements of the code. Middle stair tread is wood and has been worn down to where the leading edge of the nosing varies with respect to profile. Finish on stairs are required to be slip-resistant and be complete with contrasting nosing. Image 3
- Floor finish within main entry vestibule is tile which can become slippery during wet conditions. Walk off mats are provided and care must be taken to ensure that mats remain flat and do not pose a tripping hazard. Image 3

Access to Exit & Egress



Image 1



Image 2



Image 3

Basement Floor

- Two means of egress are required from the basement floor area. Two means of egress have been provided, however, neither exit fully complies with the requirements of the code.
- Main exit stairs are open to the basement floor area which is not permitted by code. Exits are required to be enclosed and separated from the remain floor area within a fire rated enclosure.
- The west exit stair provides a second means of egress from the basement area, however the stair is accessed through the mechanical room, which is not permitted by code. A clear path of travel, separated from the mechanical room, to the existing exit must be provided or an alternate second means of exit from the basement floor area. Image 1
- Clear headroom height of 6'-8" is required for all access to exit paths of travel. Existing piping running above the main exit stairs as well as the wood floor construction within the west exit stair reduces the clear headroom height below the minimum height requirement. Image 2
- Handrails are required by code on both sides of all stairs and be continuous along the entire length of stair. No handrails have been provided on the West exit stair. Handrails have been provided on main exit stairs but only one handrail is continuous. Image 3
- Main program space currently has signage limiting occupancy to 60 persons within the room in the farthest corner from the door. Recommended to relocate signage to outside of room near entry door for increased visibility.
- Stair risers on main exit stairs are 7 1/2" high, which exceeds the maximum permitted riser height by code of 7". Image 3

Health Requirements / Washrooms



Image 1



Image 2

- 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 today's 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 2 waterclosets for male and 3 waterclosets for female.
- Currently there are only two individual use washrooms located on the basement floor area totaling two waterclosets. One is available for public use and the other is designated staff only. Image 1&2
- As the number of required waterclosets within a building are determined by a building's 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 jurisdiction 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 unlikely occurrence that the building's calculated maximum occupancy will ever be met at a single time and that the existing facilities have served the building's 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

Entrances

- No accessible access provided into the library or to either the main or basement floor levels. Main floor level is situated approximately 6'-0" higher than the City of Winnipeg sidewalk and only accessible via the exterior main entry stairs located on the east Salter Street elevation. 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. Image 1
- Exterior entry stairs have only a single handrail installed, which does not meet the requirements for graspability, profile and height. Existing handrail has a contrasting colour making it easy to differentiate from the surrounding environment. Image 2
- Detectable warning surfaces are required at all landings and on treads and riser nosings for all stairs. An abrasive black strip has been provided on all stair treads but does not extend over to the face of the nosing. Image 2
- Book return drop-off is located halfway up the main entry stair and is not barrier-free accessible.

Controls

- Typical heights for light switches and other controls within the building vary but average around 55" above the floor. These heights exceeds the acceptable accessible range, which is between 16" and 48" above the floor.
- An auto door operator has been installed to control the main entry door, however, due to the degraded condition of the existing doors the operation of the auto operator has been compromised. Image 3



Image 1



Image 2



Image 3

Accessibility & Universal Access

Parking

- No public, including accessible parking has been provided. Parking is available on Salter and surrounding neighborhood streets and all existing sidewalks are complete with accessible curb cuts.

Washrooms

- Washroom facilities are only provided on the basement floor level to which universal access has not been provided and they currently do not meet the requirements for barrier free accessibility.
- Existing washrooms are of sufficient size to accommodate a 5'-0" turning radius for wheelchairs.
- Grab bars have not been provided and are required to be installed at all accessible toilets.
- Existing lavatory faucets require grasping and twisting of the wrist for operation. Lever style handles or automatic controls are required to meet accessibility requirements. Image 2
- Existing lavatory within public use washroom is within a base cabinet. Accessible lavatories require clearance below so users in wheelchairs can get close enough to operate the faucets. Image 3

Signage

- No accessible signage has been provided for existing washrooms.



Image 1



Image 2



Image 3

Accessibility & Universal Access



Image 1

Doors & Door Hardware

- All door hardware within the library with the exception of the basement staffroom door do not comply with the requirements for universal accessibility as they require operation with grasping and twisting of the wrists. Image 1
- Existing basement washroom doors are only 2'-7 1/2" wide and therefore do not provide the clear opening requirements of 2'-8 1/2". Clear space must be provided on the latch side of a door to enable a person in a wheelchair to manually open the door. The existing door swing orientation does not provide the required clear space. The threshold at the doors is approximately 1" high which exceeds the maximum high requirement of 1/2" in a barrier free path of travel. It can also be a tripping hazard to the buildings users. Image 2
- The existing door into the mechanical room does not provide the required clearance for universal access, however, the code does not require universal access for service rooms.
- Majority of existing doors within library are 3'-0" providing approximately 2'-9" clearance exceeding the clear opening required, when the door is in the fully opened position, for universal access of 2'-8 1/2".



Image 2

Stairs

- Colour contrasting nosing is required to be installed on all stairs used by the public to help identify the leading edge of the stair treads. No colour contrasted nosing have been provided. Existing stair nosing construction extends out from the riser with an abrupt underside which is not permitted as it could cause a tripping hazard. Image 3



Image 3

Accessibility & Universal Access

Stairs continued

- Existing stair flooring material is carpet and provides the required slip-resistance finish. Carpet appears to be in good condition, however, as previously noted colour contrasting nosing are required to be installed.
- 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 by approximately 1/2". However, it would not be feasible to attempt to correct this condition and should therefore be discussed further with the local Authority Having Jurisdiction. Image 1

Handrails

- Handrails are required to be installed on both sides of all stairs and be continuous for the entire length of stair complete with extensions at both the top and bottom of the stair. The 2010 City of Winnipeg Accessibility Design Standards require a dual height set of handrails to be provided at all stair locations.
- A handrail has been provided only on one side at the 2 riser stairs up to main floor area. Handrail profile does not currently meet the requirements for accessibility. Image 2
- No handrails provided on 3 riser stair down to program room within basement.
- Handrails have been provided on both sides for both sets of main basement stairs, however, only one side is continuous as the other handrail terminates where the wall and wood guard connect. Image 3



Image 1



Image 2



Image 3

Accessibility & Universal Access

Millwork / Cabinetry / Shelving

- Kitchen cabinetry within the staff room is not accessible.
- Circulation service counter is not accessible and has not been designed to accommodate either public or staff users in wheelchairs. Image 1
- Carpet flooring throughout main floor meets the criteria for barrier-free, however, it is well worn with areas pulling up from the substrate, which could be a tripping hazard. It is recommended that the existing carpet be replaced. 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 .



Image 1



Image 2

Fire Alarm / Exit Signage & Emergency Lighting

Fire Alarm

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

Exit Signage & Emergency Lighting

- Only emergency exit signage provided within the the building is wall mounted lamicoid signage. Exit signage is required and emergency lighting is recommended to be upgraded in order to meet the current code requirements. Image 2 & 3



Image 1



Image 2



Image 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.

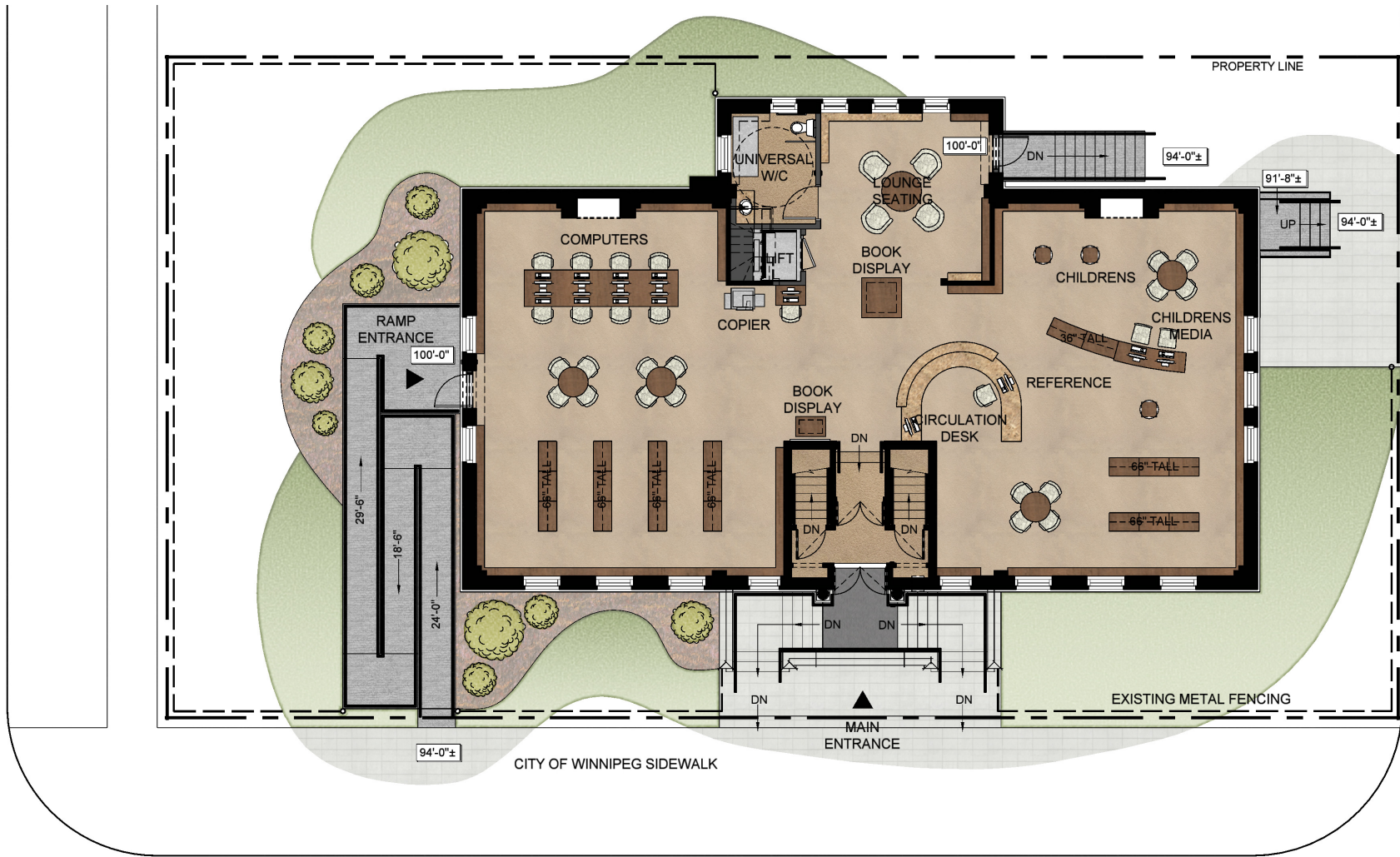
Our analysis of the existing building identifies a number of concerns with respect to both accessibility as well as life safety when measured against the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.

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

Ramp & Interior Lift System Option

Main Floor - Ramp & Interior Lift System

Architectural

- A new accessible ramp is to be constructed along the south elevation to access the existing main floor level. The buildings east elevation is listed as a historical element and will therefore not be affected by the new ramp construction. It would have been preferable to integrate the new accessible ramp in with the existing main entry, however, this would require extensive modifications to the existing exterior stair, altering the historical east elevation. Further complicating a tie into the existing main entry is that there is an interior two riser stair within the main entry vestibule up to the libraries main floor area. An interior ramp is not possible due to the existing layout. 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 south elevation which, is highly visible from both Salter Steet and Machray Avenue. 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 utilizes the existing dumb waiter and metal stair system floor opening with only minor structural adjustments required to the existing opening. The lift system is in close proximity to the circulation counter for staff monitoring. Minor adjustments are required to the existing floor opening in order to accommodate new lift system. 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.

Ramp & Interior Lift System Option

Main Floor - Ramp & Interior Lift System

Structural continued

- 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 south 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.
- The existing floor construction around the dumbwaiter and metal stair will require partial removal and infilling with new construction to accommodate the new lift system.

Mechanical

- The existing steam cabinet heaters located on either side of the new ramp entrance door are to remain as they are not affected by the new construction.

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 south elevation to provide illumination at the new ramp entrance door and along the ramp.

Ramp & Interior Lift System Option

Basement Floor - Ramp & Interior Lift System

Architectural

- The existing south elevation windows within the program room will be required to be removed and infilled due to the new ramp construction above.
- The new lift system occupies the existing space previously used by the dumb waiter and metal staircase requiring only minimal new wall construction to accommodate the new lift shaftway.
- 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 functions within any of the other spaces. The existing door opening will have to be enlarged to accommodate the new lift door so as to provide the required barrier free clearances. The new door will be fire rated and be complete with an auto door operator.

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- The existing floor construction is required to be modified to accommodate a recessed pit ensuring that the lift operation is flush with the adjacent basement floor level.

Mechanical

- The existing condensate piping located in the area of the new lift system will have to be relocated.
- The existing HRV and through wall air conditioner on the existing south elevation within the program room will have to be relocated to accommodate the new ramp. Existing ductwork and electrical duct heater coil will also have to be modified to suit. (It should be noted that this option will limit the occupancy to 20 persons within this room)

Ramp & Interior Lift System Option

Basement Floor - Ramp & Interior Lift System

Electrical

- Power will be required for the new auto door operator for the entrance door into the lift.
- Power will be required to be relocated for existing HRV unit.

Ramp & Interior Lift System Option

Main Floor - Life Safety & Accessibility

Architectural

- The existing exterior main entry stairs at the top landing adjacent to the main entry doors will have to be modified to create a new landing and top step in order to eliminate the step down directly under the main entrance doors. The new landing will be cut stone to match as well as tie into and function with the existing stairs.
- 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 floor area. The Interior vestibule double doors and both doors accessing the basement stairs are to be replaced with fire rated doors and fire rated glazing and be complete with door release hardware.
- A second means of egress from the main floor area is required due to the size and occupancy of the existing library. A new emergency exit is provided along the west elevation exiting out to the north of the building down to grade level.
- The existing two riser stair up to the main floor level is not permitted by code. It is, however, an existing condition and would not be feasible nor possible to correct. Further discussions with the Local Authority having Jurisdiction is recommended to review this existing condition. The existing intermediate tread needs to be replaced due to its degraded condition and be provided with a slip-resistant flooring complete with a colour contrasting nosing.
- The decorative tile within the main entry vestibule is to remain, however, walk-off mats are required for slip-resistance and should be maintained to prevent a tripping hazard.
- 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.

Ramp & Interior Lift System Option

Main Floor - Life Safety & Accessibility

Architectural continued

- The existing exterior main entry doors will have to be replaced with new due to their degraded condition which is affecting the function of the existing auto door operator. The new doors will be constructed to match the existing profiles and come complete with the required door release hardware.

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- 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 cut stone landing will be provided on top and pinned into the existing landing, level with the door sill.

Mechanical

- The existing steam cabinet unit heaters along the west wall in the area of the new universal washroom and lounge seating will be removed and replaced with new.
- 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 accessibility.
- 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 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.

Ramp & Interior Lift System Option

Basement Floor - Life Safety & Accessibility

Architectural

- All non-compliant door hardware is to be replaced with barrier free accessible hardware.
- The existing washrooms will be renovated and modified so as to comply with barrier-free accessibility standards. The existing washroom doors are required to be enlarged to provide the required clearances and be equipped with auto door operators. Both existing renovated washrooms are to be dedicated for male use only.
- The existing second means of egress from the basement is accessed through the mechanical room which is not permitted by code. The existing exit door, stair and its exterior enclosure will be removed and the remaining voids infilled. A new second means of egress is provided via new exit stairs located within the existing storage room at the north west corner of the building. Access to the new exit stairs is provide by a corridor extension off of the existing main corridor. The new doors will be complete with door release hardware and be fire rated as required.
- A new two stall dedicated womens washroom will be constructed within the existing storage room and will be accessed directly off of the new corridor.
- 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.
- The existing carpet flooring on the stairs up to the main entry vestibule will be replaced with slip-resistant flooring and be complete with colour contrasting nosings. The existing treads extend out past the risers creating a potential tripping hazard. Modification to stairs to address the nosings will be required.
- Barrier-free accessible signage will be provided as required.
- There is existing signage limiting room occupancy to 60 provided within the south program room, however, as noted by mechanical the modifications required to the existing systems in the program room for the lift system will limit the occupancy to 20 persons within this room.
- A new fire rated door will be provided for the existing mechanical room.
- The door into the existing staff room along with a portion of the adjacent wall will be removed to open up and provide an extension of the main corridor for access to both the new womens washroom and exit stair.
- The existing floor level within the south program room needs to be raised to match the adjacent floor level in the remainder of the basement floor area so as to provide universal access to this program space.
- Fire stopping of all existing penetrations are required as part of the fire rated separation around the existing mechanical room and exit stairs.

Ramp & Interior Lift System Option

Basement Floor - Life Safety & Accessibility

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A new exterior recessed concrete stair is to be constructed north 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 and exterior recessed stair.
- All existing recessed portions within the basement floor area, north west storage room accessed off of the mechanical room, will need to have their floor elevations raised to match the level of the adjacent floor areas.

Mechanical

- Existing mechanical piping that is at head level crossing over both exit stairs from the basement infringe on the code required headroom clearances and are required to be relocated.
- Heating, exhaust, plumbing services and fixtures will be provided for the new womens washroom.
- Exhaust, plumbing services and fixtures will be provided as part of the renovations to the existing washrooms.
- Heating will be required within the new exit stair.
- Drainage will be required within the floor structure of the new recessed exterior exit stair.

Electrical

- All building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting heights required for accessibility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- Power required for new auto door operators on doors into the renovated existing washrooms.
- Lighting, general room power and power for the new auto door operator will be required for new womens washroom.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exit door.
- Lighting will be required for the new exit stairs.

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.
- All adult computer stations are amalgamated into a dedicated computer area.
- New carpet flooring to be provided due to revised layout and interior construction.
- The childrens section has been relocated to the north west corner of the library providing a larger, less confined space with better visual connection to the circulation counter. 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 necessary 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.
- An additional book drop off will be provided at the top of the ramp next to the new entrance door.

Mechanical

- All accessible steam and condensate piping is recommended to be insulated in accordance with the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.
- An additional heating unit is recommended within the main entry vestibule.

Ramp & Interior Lift System Option

Main Floor - Interior Function Layout

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.

Ramp & Interior Lift System Option

Basement Floor - Interior Function Layout

Architectural

- The existing staff room was oversized in relation to the actual number of staff. The existing room was subdivided to provide a new smaller staffroom and a community meeting room. Additional space from the previous staff room was allocated to the new corridor accessing the new womens washroom and exit stair.
- The new meeting room can accommodate small groups and benefits from the natural light from the existing windows.
- The existing staffroom cabinets will be replaced with new fully accessible millwork.
- New carpet flooring to be provided due to revised layout and interior construction.
- All furnishings, etc. are the responsibility of the City of Winnipeg Library Services.

Mechanical

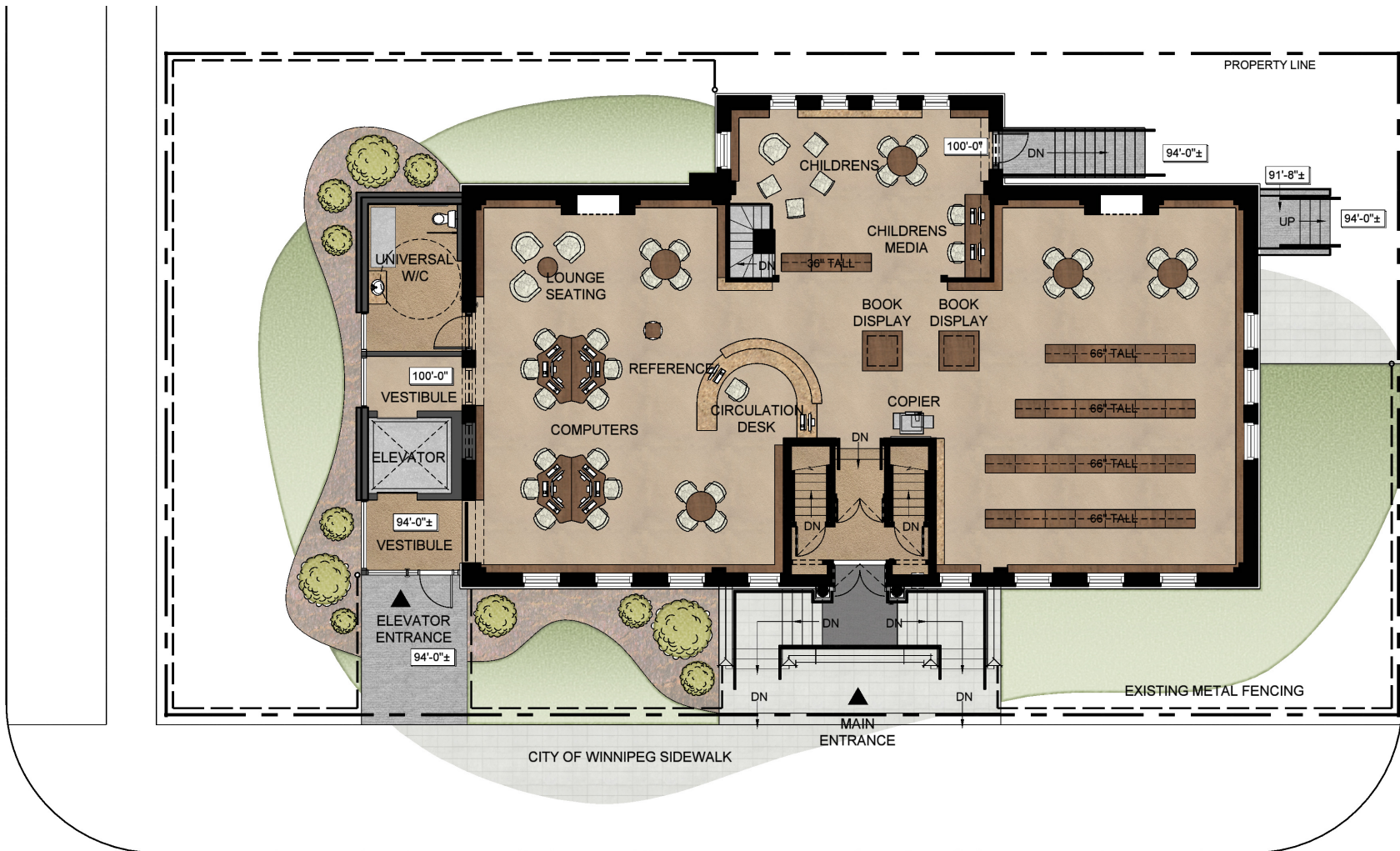
- All accessible steam and condensate piping is recommended to be insulated in accordance with the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.
- A new heating and ventilation system will be required to accommodate the new staff room, meeting room and corridor.
- A new sink complete with accessible fixtures will be provided within the staff room millwork.

Electrical

- Existing lighting, power and data will be required to be relocated and modified to accommodate the layout within the new staff and meeting rooms as well as the new corridor.

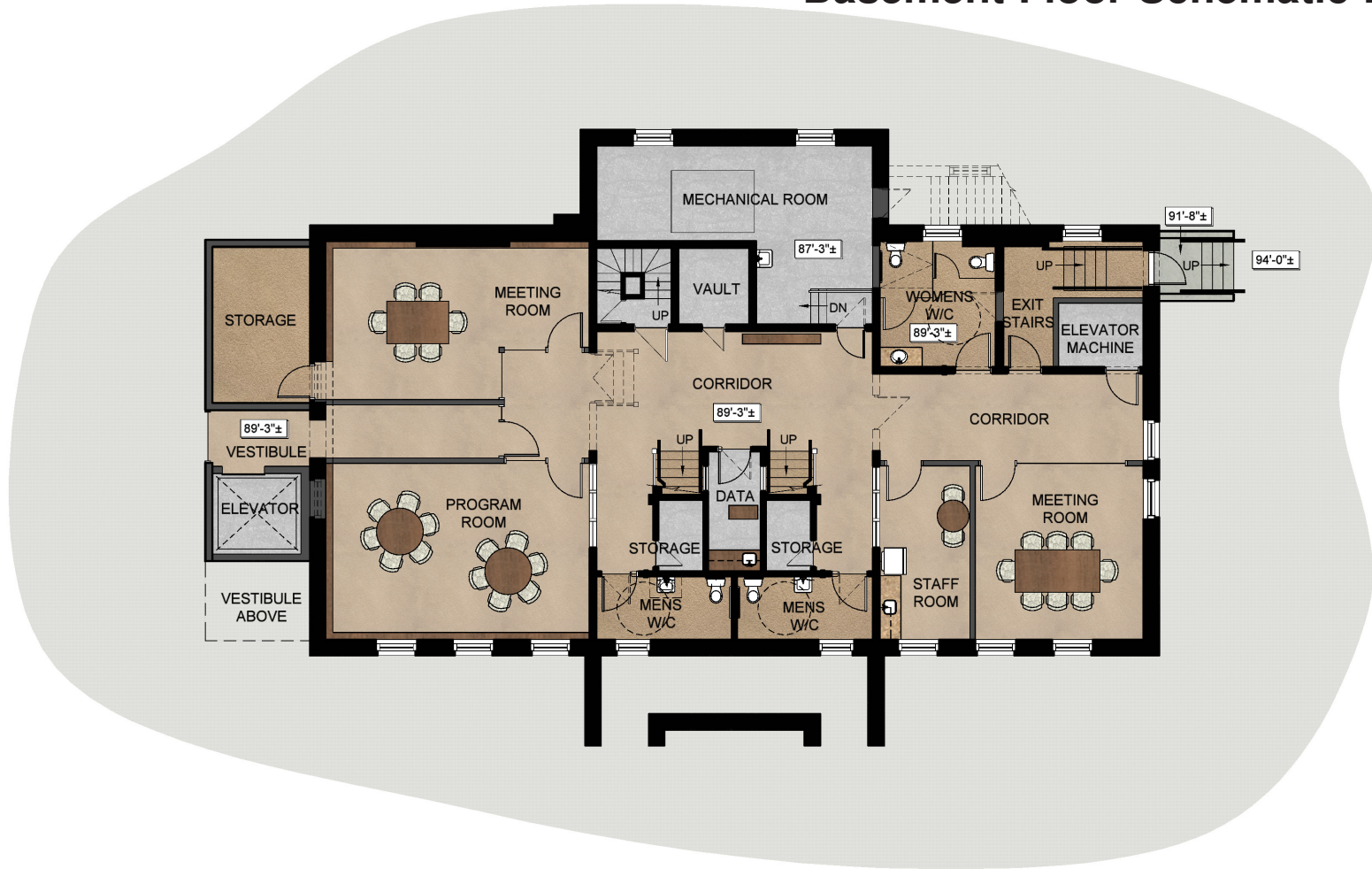
Elevator Addition Option

Elevator Addition Option Main Floor Schematic Plan



*dashed lines represent required demolition

Elevator Addition Option Basement Floor Schematic Plan



*dashed lines represent required demolition

Elevator Addition Option

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. The property south of the existing library provides adequate sizing for the new addition, offers high visibility to the new elevator vestibule from the two neighbouring streets and the functions of the new addition are easily accommodated within the interior functions and spaces of the existing library.
- 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 a new opening within the existing exterior south wall between the existing main floor area and the 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 main floor elevator vestibule to allow natural lighting to filter into the library as well as providing a visual connection to the exterior environment.

Elevator Addition Option

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

- The existing cabinet unit wall heaters along the south wall will need to be removed and the existing condensate drain lines relocated to accommodate the new addition.
- Heating will be required within the new elevator grade level entrance and main floor level vestibule.

Electrical

- The existing 120/240V, 1 phase main incoming service and distribution will be required to be up-graded to a 120/208V, 3 phase system in order to accommodate the new elevator.
- The existing fire alarm control panel is required to be upgraded in order to accommodate the new elevator.
- 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 addition.

Elevator Addition Option

Basement Floor - Elevator Addition

Architectural

- All existing windows along the south elevation will be affected by the new elevator addition. One window will be infilled to match the adjacent wall surface as it backs directly onto the new elevator hoistway and one will be modified to provide access into the new elevator addition.
- A portion of the new exit stair floor area located at the north end of the building 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.
- The required 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

- 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.
- The existing through wall air conditioning unit within the program room will be required to be relocated.

Elevator Addition Option

Basement Floor - Elevator Addition

Mechanical Continued

- Existing HRV within the program room will be required to be relocated.
- Sump pump and oil interceptor will be required within the new elevator pit to deal with any moisture or oil discharge from the elevator unit.

Electrical

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

Elevator Addition Option

Main Floor - Life Safety & Accessibility

Architectural

- The existing exterior main entry stairs at the top landing adjacent to the main entry doors will have to be modified to create a new landing and top step in order to eliminate the step down directly under the main entrance doors. The new landing will be cut stone to match as well as tie into and function with the existing stairs.
- 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 floor area. The Interior vestibule double doors and both doors accessing the basement stairs are to be replaced with fire rated doors and fire rated glazing and be complete with door release hardware.
- A second means of egress from the main floor area is required due to the size and occupancy of the existing library. A new emergency exit is provided along the west elevation exiting out to the north of the building down to grade level.
- The existing two riser stair up to the main floor level is not permitted by code. It is, however, an existing condition and would not be feasible nor possible to correct. Further discussions with the Local Authority having Jurisdiction is recommended to review this existing condition. The existing intermediate tread needs to be replaced due to its degraded condition and be provided with a slip-resistant flooring complete with a colour contrasting nosing.
- The decorative tile within the main entry vestibule is to remain, however, walk-off mats are required for slip-resistance and should be maintained to prevent a tripping hazard.
- The new universal washroom has been provided within the new elevator addition so as not to occupy valuable existing floor space nor impact on the libraries 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 utilizes one of the existing south elevation windows and is highly visible from the new circulation counter and can be easily monitored by the staff.
- Barrier-free accessible signage will be provided as required.

Elevator Addition Option

Main Floor - Life Safety & Accessibility

Architectural continued

- The existing exterior main entry doors will have to be replaced with new due to their degraded condition which is affecting the function of the existing auto door operator. The new doors will be constructed to match the existing profiles and come complete with the required door release hardware.

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- 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 cut stone landing will be provided on top and pinned into the existing landing, level with the door sill.

Mechanical

- The existing steam cabinet unit heaters along the west wall in the area of the new universal washroom and lounge seating will be removed and replaced with new.
- 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 accessibility.
- 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 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.

Elevator Addition Option

Basement Floor - Life Safety & Accessibility

Architectural

- All non-compliant door hardware is to be replaced with barrier free accessible hardware.
- The existing washrooms will be renovated and modified so as to comply with barrier-free accessibility standards. The existing washroom doors are required to be enlarged to provide the required clearances and be equipped with auto door operators. Both existing renovated washrooms are to be dedicated for male use only.
- The existing second means of egress from the basement is accessed through the mechanical room which is not permitted by code. The existing exit door, stair and its exterior enclosure will be removed and the remaining voids infilled. A new second means of egress is provided via new exit stairs located within the existing storage room at the north west corner of the building. Access to the new exit stairs is provide by a corridor extension off of the existing main corridor. The new doors will be complete with door release hardware and be fire rated as required.
- A new two stall dedicated womens washroom will be constructed within the existing storage room and will be accessed directly off of the new corridor.
- 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.
- The existing carpet flooring on the stairs up to the main entry vestibule will be replaced with slip-resistant flooring and be complete with colour contrasting nosings. The existing treads extend out past the risers creating a potential tripping hazard. Modification to stairs to address the nosings will be required.
- Barrier-free accessible signage will be provided as required.
- There is existing signage limiting room occupancy to 60 provided within the south program room, however, as noted by mechanical the modifications required to the existing systems in the program room for the lift system will limit the occupancy to 20 persons within this room.
- A new fire rated door will be provided for the existing mechanical room.
- The door into the existing staff room along with a portion of the adjacent wall will be removed to open up and provide an extension of the main corridor for access to both the new womens washroom and exit stair.
- The existing floor level within the south program room needs to be raised to match the adjacent floor level in the remainder of the basement floor area so as to provide universal access to this program space.
- Fire stopping of all existing penetrations are required as part of the fire rated separation around the existing mechanical room and exit stairs.

Elevator Addition Option

Basement Floor - Life Safety & Accessibility

Structural

- A steel angle lintel is to be provided, one per wythe, above each new opening within the existing masonry walls.
- A new exterior recessed concrete stair is to be constructed north 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 and exterior recessed stair.
- All existing recessed portions within the basement floor area, north west storage room accessed off of the mechanical room, will need to have their floor elevations raised to match the level of the adjacent floor areas.

Mechanical

- Existing mechanical piping that is at head level crossing over both exit stairs from the basement infringe on the code required headroom clearances and are required to be relocated.
- Heating, exhaust, plumbing services and fixtures will be provided for the new womens washroom.
- Exhaust, plumbing services and fixtures will be provided as part of the renovations to the existing washrooms.
- Heating will be required within the new exit stair.
- Drainage will be required within the floor structure of the new recessed exterior exit stair.

Electrical

- All building switches, fire alarm pull stations and other devices are to be relocated to comply with the mounting heights required for accessibility.
- All existing exit signage and emergency lighting are required to be up-graded in order to comply with the current code requirements.
- Power required for new auto door operators on doors into the renovated existing washrooms.
- Lighting, general room power and power for the new auto door operator will be required for new womens washroom.
- Additional fire alarm devices and tie-in into the existing system will be provided for the new exit door.
- Lighting will be required for the new exit stairs.

Elevator Addition 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 elevator entrance vestibule, universal washroom and main floor elevator vestibule.
- All adult computer stations are amalgamated into a dedicated computer area adjacent to the reference counter.
- New carpet flooring to be provided due to revised layout and interior construction.
- The childrens section has been relocated to the west end of library providing a larger, less confined space with better visual connection to the circulation counter. 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 necessary 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.
- An additional book drop will be provided at the new elevator entrance vestibule.

Mechanical

- All accessible steam and condensate piping is recommended to be insulated in accordance with the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.
- An additional heating unit is recommended within the main entry vestibule.

Elevator Addition Option

Main Floor - Interior Function Layout

Electrical

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

Elevator Addition Option

Basement Floor - Interior Function Layout

Architectural

- The existing staff room was oversized in relation to the actual number of staff. The existing room was subdivided to provide a new smaller staffroom and community meeting room. Additional space from the room was allocated to the new corridor accessing the new womens washroom and exit stair.
- The new meeting room can accommodate small groups and benefits from the natural light from the remaining existing windows.
- A new storage room will be constructed within the space directly beneath the new main floor universal washroom.
- The existing staffroom cabinets will be replaced with new fully accessible millwork.
- The existing large program room has been subdivided into two medium sized program spaces due to the new required elevator vestibule.
- New carpet flooring to be provided due to revised layout and interior construction.
- 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

- All accessible steam and condensate piping is recommended to be insulated in accordance with the 2010 National Building Code of Canada with the 2011 Manitoba Amendments.
- A new heating and ventilation system will be required to accommodate the new staff room, meeting room and corridor.
- A new sink complete with accessible fixtures will be provided within the staff room millwork.
- Heating will be required within the new storage room.
- The existing HRV from the south program room is to be relocated and a new heating and ventilation system need to be provided for the adjacent program spaces to new elevator vestibule. (It should be note that this option will limit the occupancy to 20 persons per new room)

Elevator Addition Option

Basement Floor - Interior Function Layout

Electrical

- Existing lighting, power and data will be required to be relocated and modified to accommodate the layout within the new staff and meeting rooms as well as the new corridor extension.
- Existing lighting, power and data will be required to be relocated and modified to accommodate the new program spaces adjacent to the new elevator vestibule.
- Lighting and power will be required 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 construction.

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 indicative of construction costs at the time of the report and would be subject to typical cost escalation.

Ramp & Interior Lift System Option

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 South 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 City of Winnipeg concrete sidewalk. Modify existing metal fencing to suit.
- 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.
- Remove portion of existing main floor construction as required and provide new concrete topping on steel deck and channels floor construction for remaining opening around lift system and universal washroom.

Electrical

- 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 elevation of building for new ramp.

Ramp & Interior Lift System Option

Basement Floor - Ramp & Interior Lift System

Architectural

- Remove existing windows along South wall of large program room and infill with similar materials to match adjacent wall surface.
- Enlarge existing door opening from previous metal stair to accommodate new fire rated lift system access door complete with auto door operator.
- Construct new GWB wall enclosure around new lift system.
- 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 enlarged door opening for lift.
- Remove portion of existing floor and provide new floor construction to accommodate new recess for lift system pit requirements.

Mechanical

- Relocate condensate return piping in lift system area.
- Relocate existing HRV intake and exhaust, modify ductwork and electric duct heater. (This option is not required if the new building AHU and ventilation system recommended requirement is provided.)
- Relocate existing through wall air conditioner. (This option is not required if the new building AHU and ventilation system recommended requirement is provided.)

Electrical

- Provide power to auto door operator at new lift door.
- Relocate power for existing HRV unit.

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 and replace all existing non-accessible door hardware with new universally compliant hardware.
- Remove and replace existing main entry doors complete with barrier free accessible and door release hardware. Doors to be constructed to match existing.
- Remove and provide new dual set of wood handrails on both sides of interior two riser stair up to main floor area. Remove and provide new dual set of painted steel handrails on both sides of exterior stair including raised painted steel guardrail at top and intermediate landing areas.
- Remove and replace interior vestibule double doors and both doors accessing the basement stairs with fire rated doors complete with fire rated glazing and door release hardware.
- Remove and provide new intermediate tread on two riser stair up to main floor level complete with anti-slip colour contrasting nosing. Modify stair to remove extended nosing.
- 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.
- Remove existing north window and portion of existing wall construction. Construct new exterior steel exit stair from main floor level down to new concrete slab at grade complete with painted steel guard and handrails.
- Paint all new or existing walls affected by new construction.
- Provide accessible signage as required.

Ramp & Interior Lift System Option

Main Floor - Life Safety & Accessibility

Structural

- Construct new steel exterior exit stair and support foundations.
- Provide 4"x4"x3/8" steel angle lintels at new door openings.
- 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.
- Remove existing and provide new steam cabinet unit heaters along west wall.
- Provide new steam wall fin radiation for universal washroom.

Electrical

- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new fire alarm devices for 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.

Ramp & Interior Lift System Option

Basement Floor - Life Safety & Accessibility

Architectural

- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Renovate existing washrooms to comply with barrier-free accessibility requirements. Remove and enlarge existing door rough opening to accommodate new accessible door. Doors to be complete with auto door operator.
- Remove and provide new dual set of wood handrails at all stair locations.
- Remove existing carpet on stairs and provide new anti-slip flooring complete with colour contrasting nosing. Modify stairs to remove extended nosing.
- Construct new full height GWB walls to create new corridor to access new exit stair. Enlarge opening from main corridor.
- Demolish existing exterior covered exit stair including doors. Infill door opening and void remaining. Provide finish grade asphalt. Patch and make good existing exterior wall.
- Construct new exit stair complete with interior steel stair, exterior door and exterior cast concrete stair up to grade. Provide opening within existing wall to accommodate new door and frame. Provide rated doors complete with door release hardware. Raise floor level within room to match remainder of floor area. Provide painted steel handrails.
- Remove and provide new fire rated door into existing mechanical room.
- Construct new womens washroom complete with toilet stall partitions and vanity millwork. Raise floor level within room to match remainder of floor area. Provide opening within existing wall to accommodate new door and frame. Door to be complete with auto door operator.
- Raise floor level within large program space to match remainder of floor area. Modify door rough opening to accommodate new doors. Remove and provide new floor and ceiling finishes.
- Fire stopping of all new and existing penetrations into new exit stairs and existing mechanical 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.

Ramp & Interior Lift System 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.
- Construct new 5" reinforced concrete slab over compacted granular in-fill for all existing floor recesses.

Mechanical

- Provide new steam cabinet unit heater within new exit stair.
- Provide new washroom fixtures and plumbing services for new womens washroom.
- Provide exhaust fan and ductwork for new womens washrooms.
- Provide new steam cabinet unit heater within new womens washroom.
- Relocate existing low piping within new womens washroom.
- Provide new washroom fixtures and plumbing services for renovated existing washrooms.
- Provide exhaust fans and ductwork for renovated existing washrooms.
- Relocate and reinsulate low piping over existing exit stairs.
- 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 power to auto door operators for renovated existing washrooms.
- Provide lighting and power for new womens washroom.
- Provide power to auto door operator for new womens washroom.
- Provide lighting for new exit stair.

Ramp & Interior Lift System Option

Main Floor - Interior Function Layout

Architectural

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

Mechanical

- Insulate all accessible steam and condensate piping.
- Provide additional new steam cabinet unit heater at main entrance vestibule.

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

- Construct full height GWB demising wall complete with acoustic batt infill insulation between staff room and new meeting room.
- Remove existing and provide new carpet flooring.
- Remove existing window air conditioning unit from existing staff room and install new window to match existing.
- 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 openings.

Mechanical

- Insulate all accessible steam and condensate piping.
- Provide stainless steel sink and fixtures within new staff room accessible millwork.
- Provide HRV, furnace, condensing unit, condensate pump and ductwork for new staff and meeting room as well as new corridor. (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, meeting room and new corridor to accommodate new layout.

Ramp & Interior Lift System Option Costing

Ramp & Interior Lift		
Architectural	\$180,250	
Structural	\$63,000	
Mechanical	\$21,000	
Electrical	\$7,000	
		\$271,250
Life Safety & Accessibility		
Architectural	\$246,750	
Structural	\$47,000	
Mechanical	\$32,800	
Electrical	\$14,800	
		\$341,350
Functional Layout		
Architectural	\$120,300	
Structural	\$2,500	
Mechanical	\$43,500	
Electrical	\$6,000	
		\$172,300
	Sub-Total	\$784,900
	GC Mark-up @ 10%	\$78,490
	Design Continuation @ 5%	\$39,245
		\$902,635
	Sub-Total	\$902,635
	Bonding @ .75%	\$6,769
		\$909,404
	Probable Budget Costs	\$909,404
	(+/- 20% not including disbursements, additional recommendations)	
	(Prices are in December 2012 dollars)	

Ramp & Interior Lift System Option

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, geo-technical 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 conditioning to the building and some heating. The buildings existing heating system would still operate as the main heating source and the existing air conditioning units 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 proceed under the assumption that this option will not be a requirement and is therefore not reflecting within the previously identified scope of work nor included within the probable budget costing. The following is a list of items that would be included 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 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 \$97,000. 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

Elevator Addition Option

Main Floor - Elevator Additon

Architectural

- Construct new elevator addition complete with grade level glazed entry vestibule. Provide power door operator. 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 window and portion of wall construction to provide access to new main floor vestibule landing.
- Remove existing window and reinstall with light box construction behind 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 path from elevator entrance and tie into existing City of Winnipeg sidewalk.

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.

Mechanical

- Remove existing main floor steam cabinet unit heaters from along south wall and relocate condensate drains to suit.
- Provide new steam cabinet unit heater at elevator entrance vestiuble.
- Provide new steam wall fin radiation for main floor elevator vestibule.

Elevator Addition Option

Main Floor - Elevator Addition

Electrical

- Upgrade existing service to a 120/208V, 3 phase system.
- Upgrade existing fire alarm control panel.
- 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.
- Provide new emergency exit signage and lighting.
- Provide new exterior lighting along south elevation of new elevator addition.
- Provide lighting and power within entrance and main floor level vestibules.

Elevator Addition Option

Basement Floor - Elevator Additon

Architectural

- Excavate surrounding grade to accommodate new elevator addition construction. Regrade surrounding area complete with sodding and landscaping.
- Remove existing south elevation window and portion of wall construction to accommodate tie in for basement floor elevator vestibule. Construct fire rated GWB and glass walls around elevator vestibule. Provide fire rated door complete with fire rated glazing.
- Remove existing south elevation window backing onto elevator hoistway and infill with similar materials to match adjacent wall surface.
- Construct new fire rated GWB walls around 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.
- Relocate existing through wall air conditioning unit and HRV. (This option is not required if the new building AHU and ventilation system recommended requirement is provided.)
- Provide new steam wall fin radiation for elevator vestibule.
- Provide sump pump and oil interceptor for elevator operation.

Elevator Addition Option

Basement Floor - Elevator Addition

Electrical

- Provide lighting and power for new elevator machine room.
- Provide lighting and power for new elevator vestibule.
- Provide new electric wall radiation within elevator pit.
- Provide power for elevator machine room mechanical equipment.

Elevator Addition 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 and replace all existing non-accessible door hardware with new universally compliant hardware.
- Remove and replace existing main entry doors complete with barrier free accessible and door release hardware. Doors to be constructed to match existing.
- Remove and provide new dual set of wood handrails on both sides of interior two riser stair up to main floor area. Remove and provide new dual set of painted steel handrails on both sides of exterior stair including raised painted steel guardrail at top and intermediate landing areas.
- Remove and replace interior vestibule double doors and both doors accessing the basement stairs with fire rated doors complete with fire rated glazing and door release hardware.
- Remove and provide new intermediate tread on two riser stair up to main floor level complete with anti-slip colour contrasting nosing. Modify stair to remove extended nosing.
- 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.
- Remove existing north window and portion of existing wall construction. Construct new exterior steel exit stair from main floor level down to new concrete slab at grade complete with painted steel guard and handrails.
- Paint all new or existing walls affected by new construction.
- Provide accessible signage as required.

Structural

- Construct new steel exterior exit stair and support foundations.
- Provide 4"x4"x3/8" steel angle lintels at new door openings.
- Provide new cut stone landing to suit existing. New stone to be pinned onto existing and level with door sill.

Elevator Addition Option

Main Floor - Life Safety & Accessibility

Mechanical

- Provide new washroom fixtures and plumbing services for universal washroom.
- Provide exhaust fan for universal washroom.
- Remove existing and provide new steam cabinet unit heaters along west wall.
- Provide new steam wall fin radiation for universal washroom.

Electrical

- Lower all building switches, fire alarm pull stations and other devices.
- Upgrade all exit signage and emergency lighting.
- Provide new fire alarm devices for 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.

Elevator Addition Option

Basement Floor - Life Safety & Accessibility

Architectural

- Remove and replace all existing non-accessible door hardware with new universally compliant hardware.
- Renovate existing washrooms to comply with barrier-free accessibility requirements. Remove and enlarge existing door rough opening to accommodate new accessible door. Doors to be complete with auto door operator.
- Remove and provide new dual set of wood handrails at all stair locations.
- Remove existing carpet on stairs and provide new anti-slip flooring complete with colour contrasting nosing. Modify stairs to remove extended nosing.
- Construct new full height GWB walls to create new corridor to access new exit stair. Enlarge opening from main corridor.
- Demolish existing exterior covered exit stair including doors. Infill door opening and void remaining. Provide finish grade asphalt. Patch and make good existing exterior wall.
- Construct new exit stair complete with interior steel stair, exterior door and exterior cast concrete stair up to grade. Provide opening within existing wall to accommodate new door and frame. Provide rated doors complete with door release hardware. Raise floor level within room to match remainder of floor area. Provide painted steel handrails.
- Remove and provide new fire rated door into existing mechanical room.
- Construct new womens washroom complete with toilet stall partitions and vanity millwork. Raise floor level within room to match remainder of floor area. Provide opening within existing wall to accommodate new door and frame. Door to be complete with auto door operator.
- Raise floor level within large program space to match remainder of floor area. Modify door rough opening to accommodate new doors. Remove and provide new floor and ceiling finishes.
- Fire stopping of all new and existing penetrations into new exit stairs and existing mechanical 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 piles foundations.
- Construct new interior steel exit stairs.
- Provide 4"x4"x3/8" steel angle lintels at new openings.
- Construct new 5" reinforced concrete slab over compacted granular in-fill for all existing floor recesses.

Mechanical

- Provide new steam cabinet unit heater within new exit stair.
- Provide new washroom fixtures and plumbing services for new womens washroom.
- Provide exhaust fan and ductwork for new womens washrooms.
- Provide new steam cabinet unit heater within new womens washroom.
- Relocate existing low piping within new womens washroom.
- Provide new washroom fixtures and plumbing services for renovated existing washrooms.
- Provide exhaust fans and ductwork for renovated existing washrooms.
- Relocate and reinsulate low piping over existing exit stairs.
- 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 power to auto door operators for renovated existing washrooms.
- Provide lighting and power for new womens washroom.
- Provide power to auto door operator for new womens washroom.
- Provide lighting for new exit stair.

Elevator Addition Option

Main Floor - Interior Function Layout

Architectural

- Provide new accessible circulation counter / reference counter millwork.
- Remove existing and provide new carpet flooring.
- Paint all new or existing walls affected by new construction.
- Patch existing floor construction due to relocated / new power services.
- Construct new perimeter shelving at new childrens area and north of main entry vestibule to match existing.
- Provide new book drop off at new elevator entrance

Mechanical

- Insulate all accessible steam and condensate piping.
- Provide additional new steam cabinet unit heater at main entrance vestibule.

Electrical

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

Elevator Addition Option

Basement Floor - Interior Function Layout

Architectural

- Construct full height GWB demising wall complete with acoustic batt infill insulation between staff room and new meeting room.
- Remove existing and provide new carpet flooring.
- Remove existing window air conditioning unit from existing staff room and install new window to match existing. Construct full height GWB walls complete with wood doors and glazed sidelights into new meeting and program rooms adjacent to new elevator vestibule.
- Provide intumescent fire rated coating on all new steel lintels within required fire rated wall construction.
- Paint all new or existing walls affected by new construction.
- Construct storage room within remaining void under new main floor universal washroom. Provide hollow metal door and frame and VCT flooring.

Structural

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

Mechanical

- Insulate all accessible steam and condensate piping.
- Provide stainless steel sink and fixtures within new staff room accessible millwork.
- Relocate existing HRV and provide new furnace, condensing unit, ductwork and condensate pump for new south meeting and program rooms adjacent to new elevator vestibule. 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.)

Elevator Addition Option

Basement Floor - Interior Function Layout

Mechanical continued

- Provide HRV, furnace, condensing unit, condensate pump and ductwork for new staff and meeting room as well as new corridor. This option will limit the occupancy within this room 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, meeting room and new corridor to accommodate new layout.
- Provide lighting and power for new basement storage within elevator addition
- Provide / modify power, data and lighting systems for new program and meeting rooms adjacent to new elevator vestibule.

Elevator Addition Option Costing

Elevator Addition

Architectural	\$371,600	
Structural	\$84,500	
Mechanical	\$13,400	
Electrical	\$55,500	
		\$525,000

Life Safety & Accessibility

Architectural	\$246,750	
Structural	\$47,000	
Mechanical	\$32,800	
Electrical	\$14,800	
		\$341,350

Functional Layout

Architectural	\$120,300	
Structural	\$2,500	
Mechanical	\$60,500	
Electrical	\$11,500	
		\$194,800

Sub-Total	\$1,061,150
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GC Mark-up @ 10%	\$106,115
Design Continuation @ 5%	\$53,057

Sub-Total	\$1,220,322
Bonding @ .75%	\$9,152

Probable Budget Costs	\$1,229,474
(+/- 20% not including disbursements, additional recommendations)	
(Prices are in December 2012 dollars)	

Elevator Addition Option

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, geo-technical 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 conditioning to the building and some heating. The buildings existing heating system would still operate as the main heating source and the existing air conditioning units 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 proceed under the assumption that this option will not be a requirement and is therefore not reflecting within the previously identified scope of work nor included within the probable budget costing. The following is a list of items that would be included 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 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 \$97,000. 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 St. John's 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 overcoming 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 addressing 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 72'-0". 6'-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 utilizes an existing floor penetration, however, the universal washroom is taking up valuable main floor area.
- Lift system occupies the existing space from the previous metal staircase within the basement leaving the 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 space to 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.

- Areas of interior ceiling shows signs of possible moisture 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.
- 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.
- Existing interior lighting on the main floor is of the older version and could be up-graded to a higher efficient fixture.

Appendix

Appendix
Garaventa Lift System



Garaventa Wheelchair Lifts

GENESIS DESIGN AND PLANNING GUIDE

for lifting heights up to fourteen feet



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

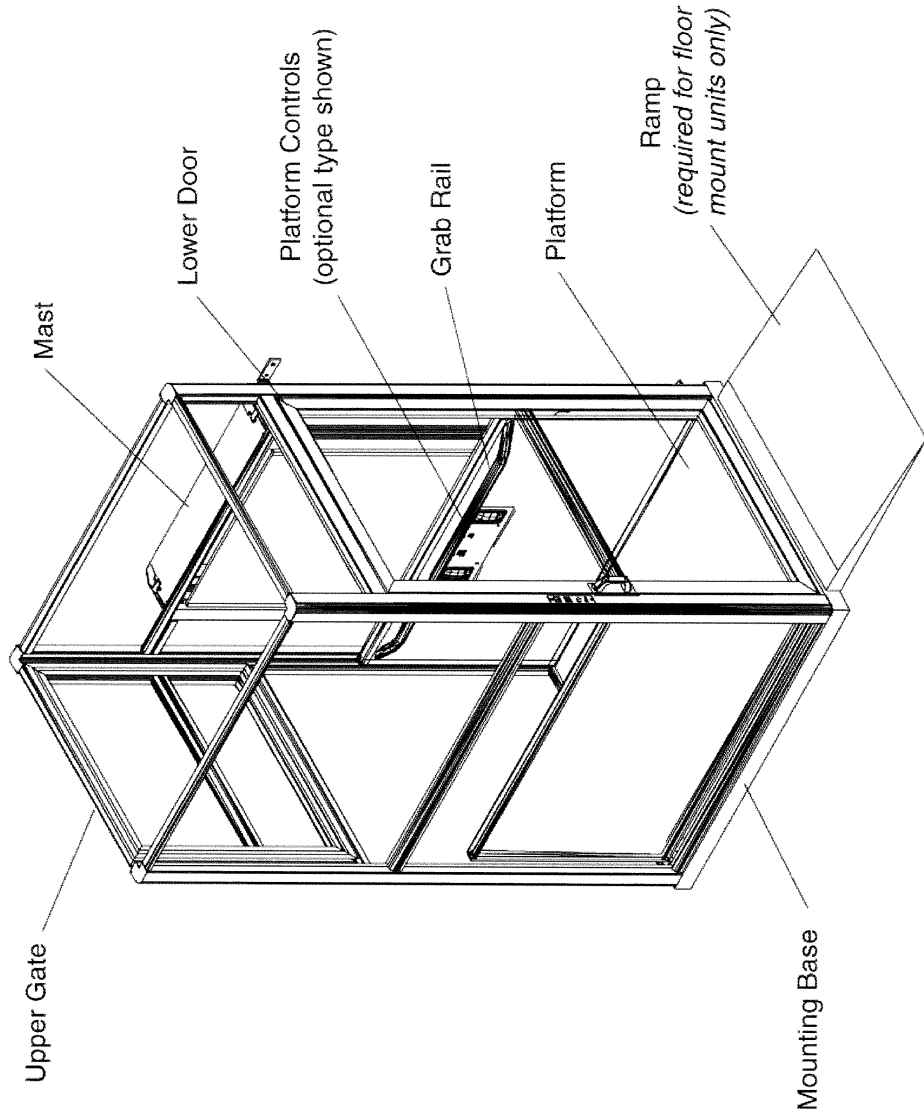
When located outdoors, the Genesis is modified to ensure durability and reliable performance. Included in the outdoor package are: hot dipped galvanized base, plated platform, galvanized mezzanine brackets, sealed electrical box, rubber boots on switches and stainless steel fasteners.

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

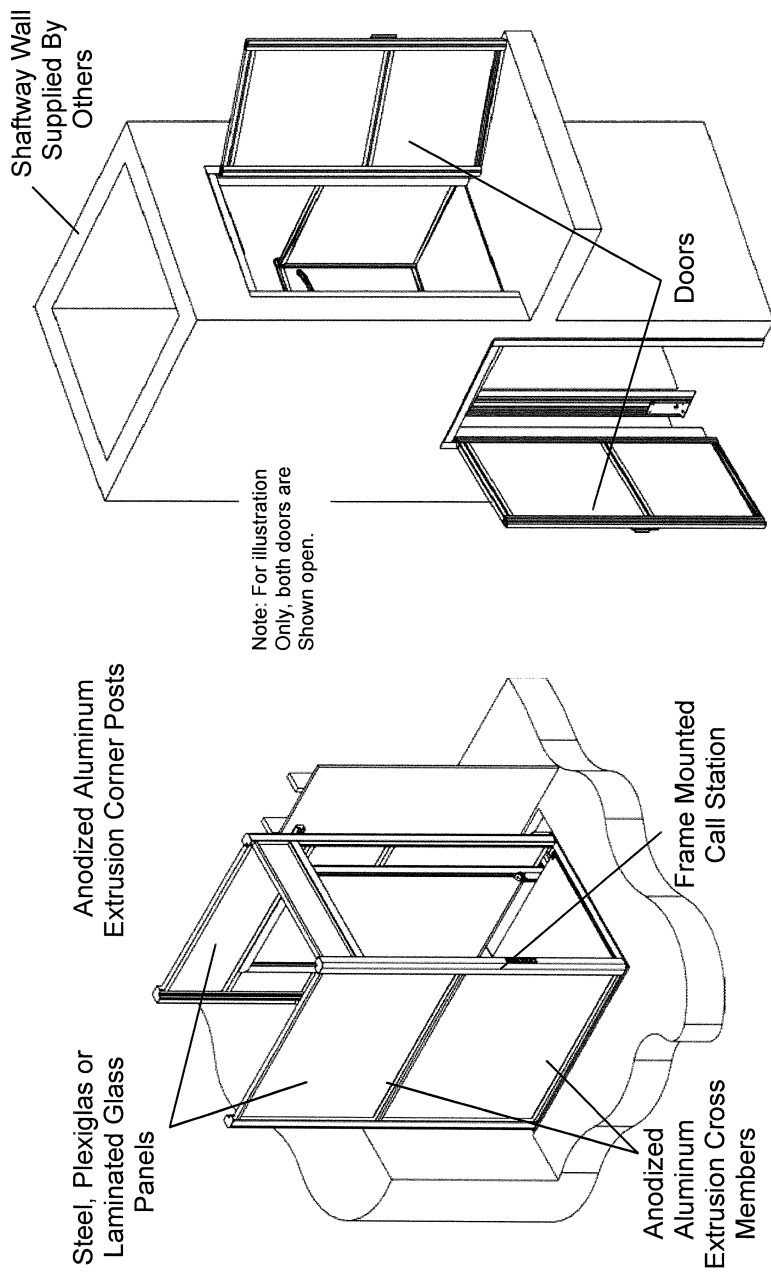
The Genesis is available in two styles, the Enclosure Model and the Shaftway Model. The Enclosure Model consists of a factory supplied mast, platform, doors and factory manufactured walls that enclose the lift. The Shaftway Model consists of a mast, platform and doors. The walls enclosing the lift are 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 floor** 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.

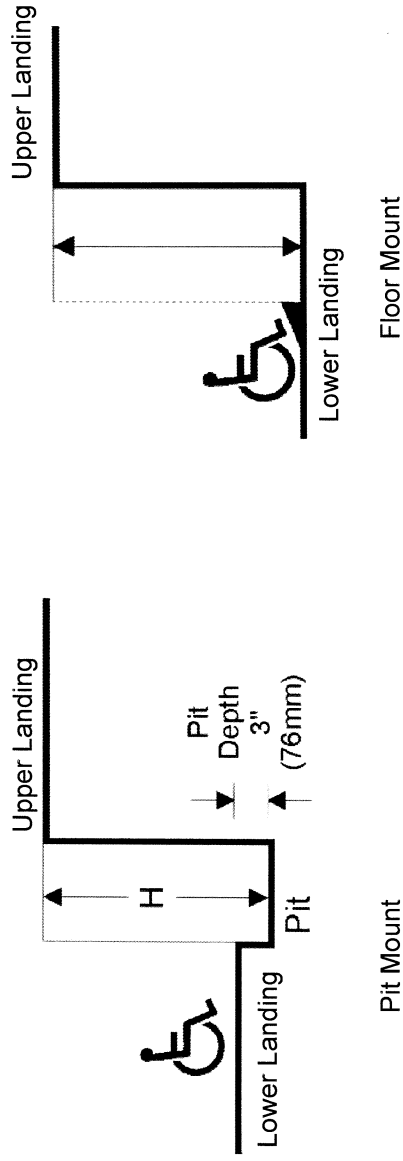
The width of the mast is 998mm (39 1/4") and is standard for all mast heights.

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.



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.

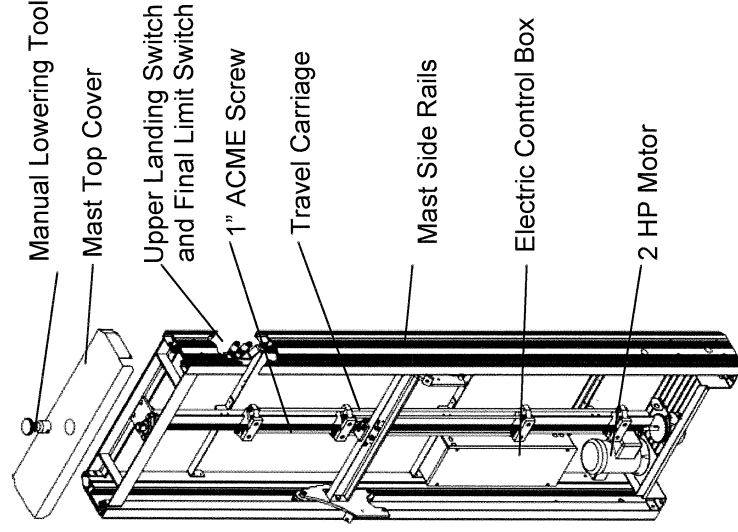
Mains Power Requirement:

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)

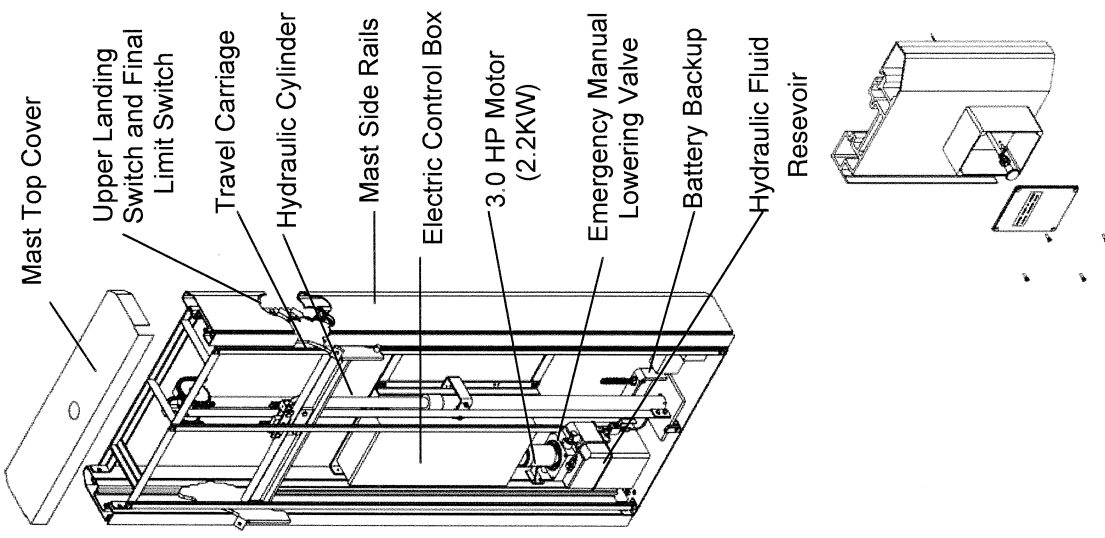
For installation sites where it would be difficult to place the drive mast into position as a single piece, the split mast option is available for GVL-120 and GVL-144. GVL-168 Hydraulic Models are supplied standard with a split mast.

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:

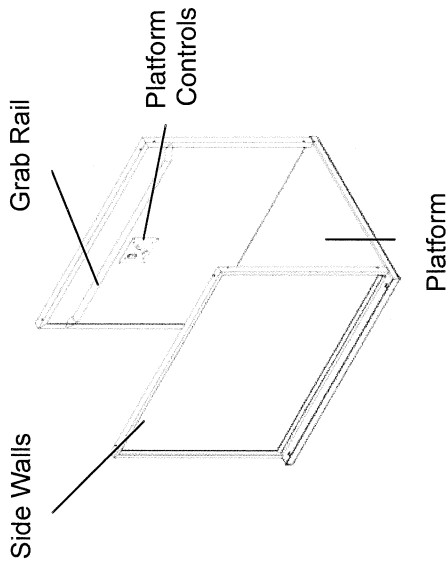
Compact - 914mm x 1257mm (36" x 49 1/2")

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")

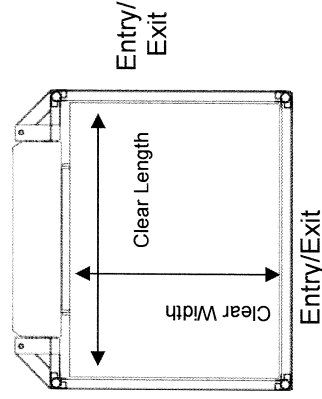
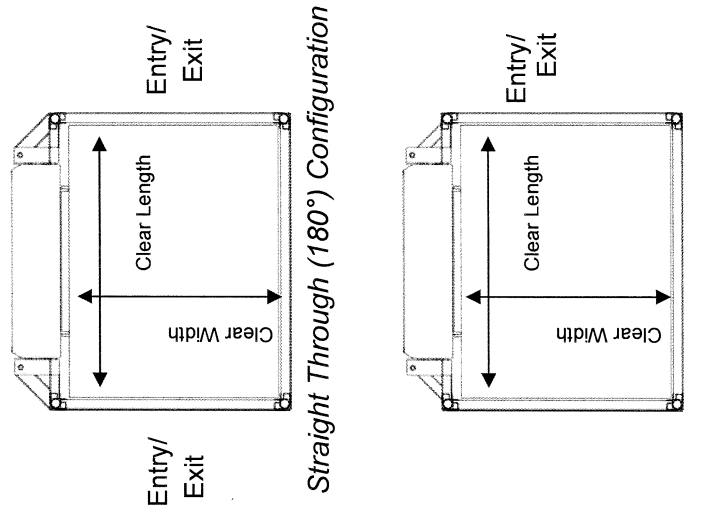
Large - 1099mm x 1522mm (43 1/4" x 60")

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.



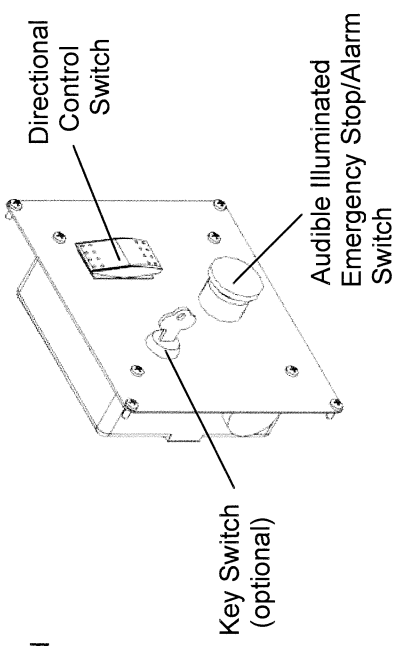
90° Configuration
(available with left or right enter/exit)

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)

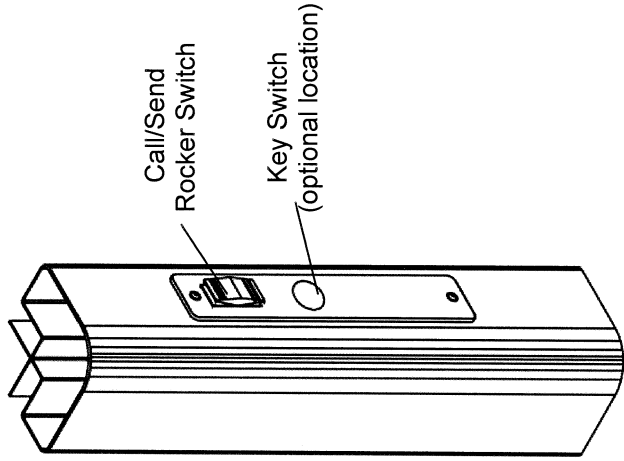
Operating Controls

Rocker Style Switches (standard)

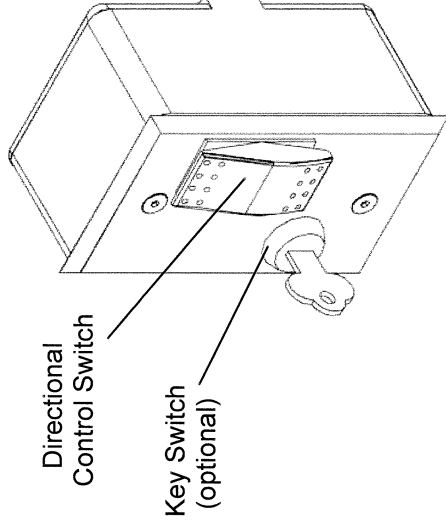
The Genesis vertical lift comes equipped standard with rugged indoor/outdoor constant pressure switches. The platform control panel comes standard with an Illuminated Audible Emergency Stop Switch. All controls can be fitted with an optional AEEMA key switch.



Platform Controls



Rocker Type Frame Mounted Call Station (standard)

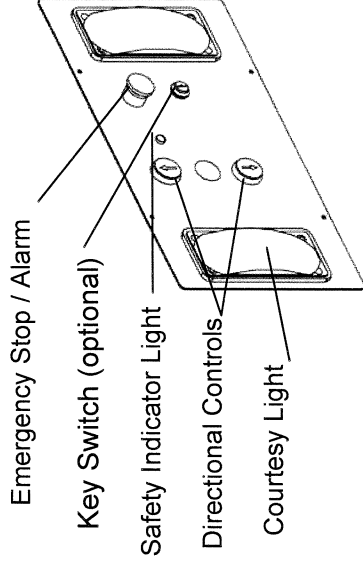


Wall Mounted Call Station Used at Lower and/or Upper Landing

Operating Controls

Push Button Style (optional)

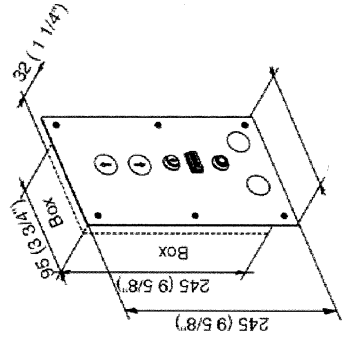
The lift can be equipped with illuminated and tactile push button directional control switches and platform courtesy lighting. Easy to use push button directional controls indicate direction of platform travel. Platform courtesy lighting remains illuminated for the duration of platform travel and for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



Keyed Call Station and Platform Controls (optional)

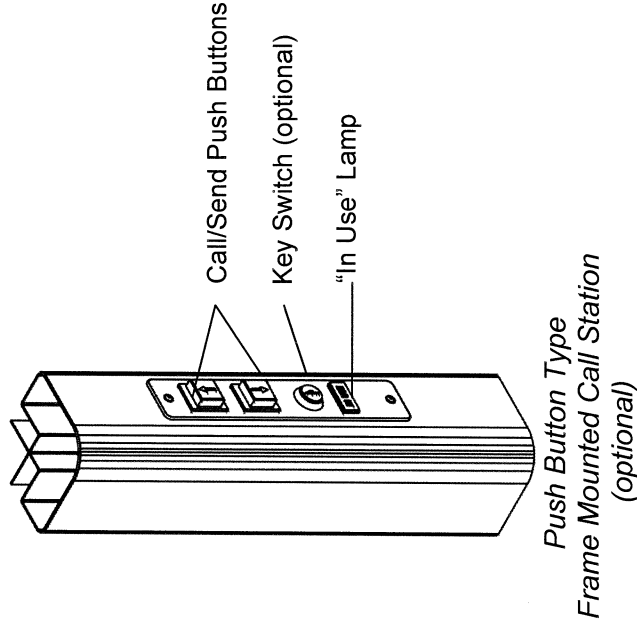
To prevent the use of the lift by unauthorized personnel, the call stations and platform controls can be set up for keyed operation.

Push Button Style Platform Controls (optional)



Call Station Face Plate Installed on Wall Mount Conduit Box Shown (optional)

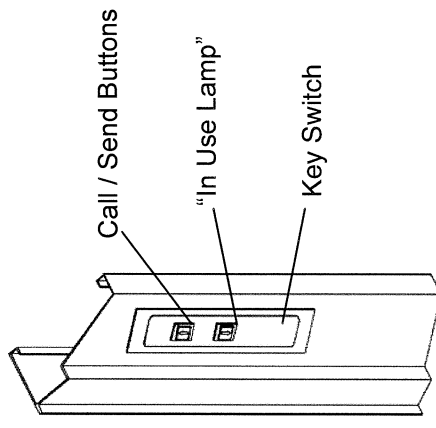
*Surface Mount Call Station Dimension
250mm (9 3/4")L x 100mm(3 7/8")W x 23mm (7/8")D



*Push Button Type
Frame Mounted Call Station
(optional)*

Shaftway Frame Mounted Call Stations: Fire Rated Doors

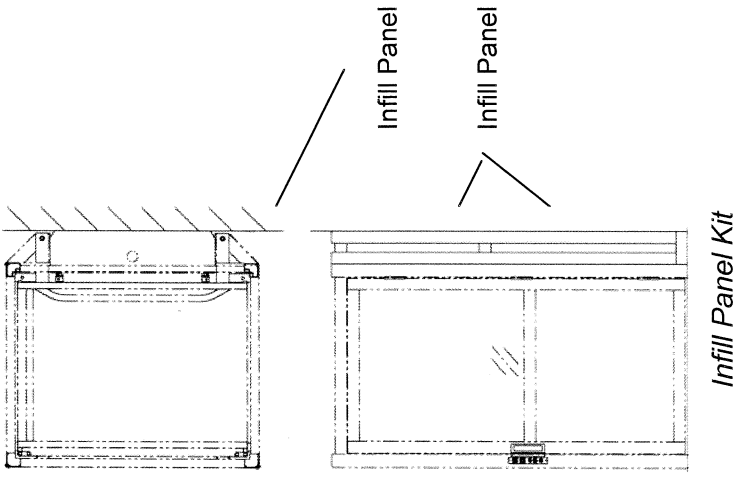
When a fire rated door is used the call stations are usually mounted in the steel frame of the door, similar to the Garaventa style door call stations. Can be ordered with wall mount call stations.



*Frame Mounted Fire Door
Call Station (optional)*

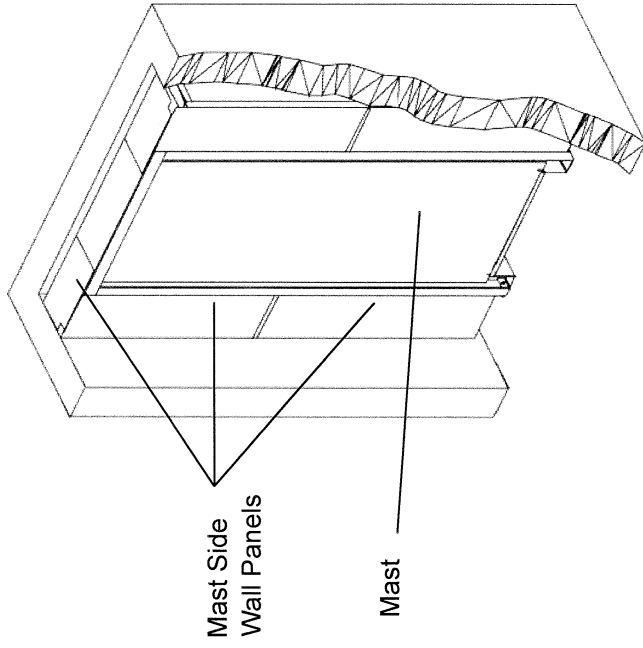
Infill Panel Kits (optional)
(Enclosure Model Only)

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.



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.

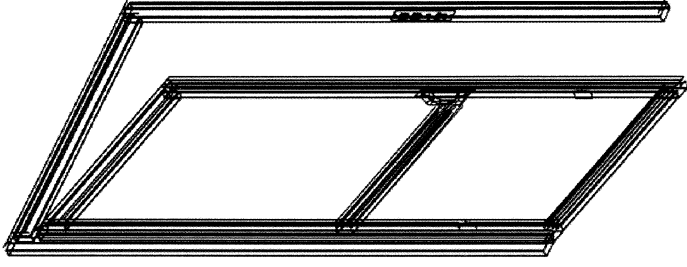


Garaventa Style Doors and Gates

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:

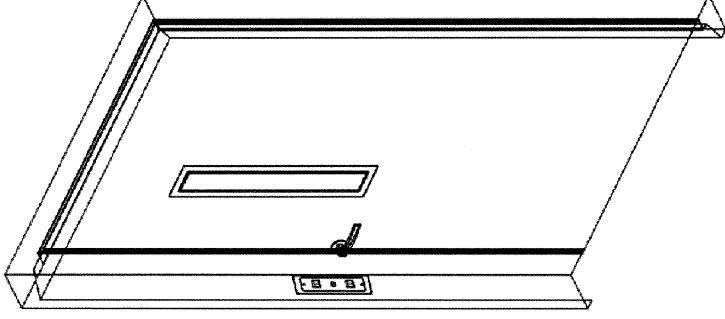
- 905mm (35 5/8")
- 1046mm (41 1/8")
- 1109mm (43 5/8") (for wide side 90° configurations)



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.

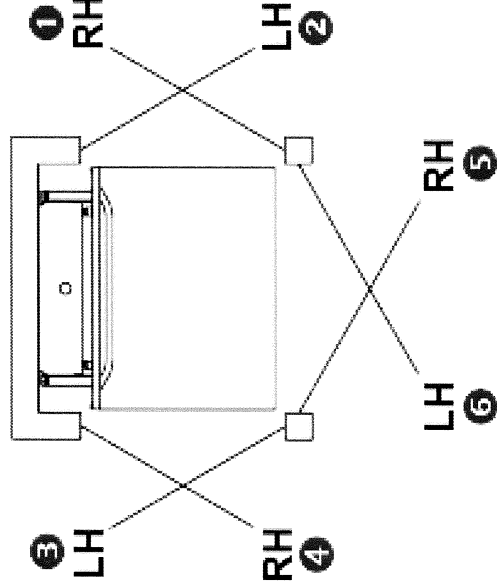
Powerlock 2000 (CSA Certified)

(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

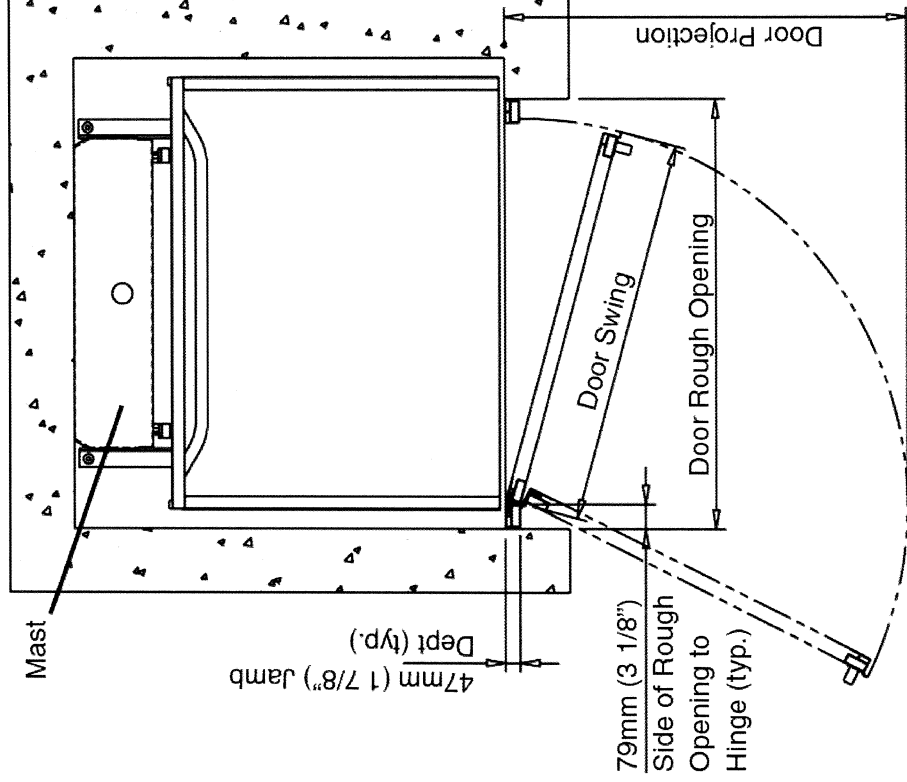


Gate Positions & Swing Options

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

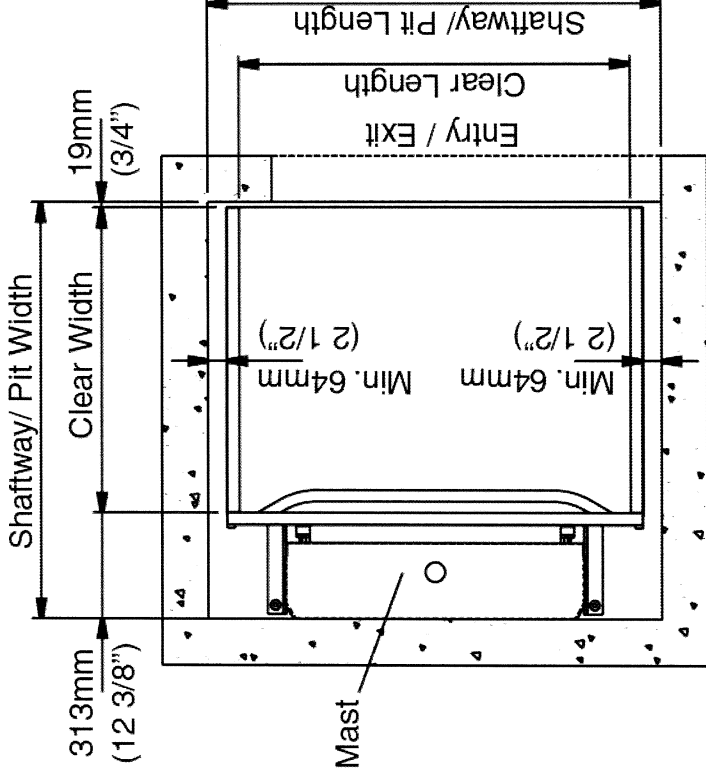


Dimensions are provided for reference only. Submittal drawing dimensions should be used for site preparation and construction.

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.
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.
Stops platform travel and sounds audible alarm.
Auxiliary Power System operates the lift in up and down direction.
- Emergency Stop:
- Emergency Operation:
- 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.

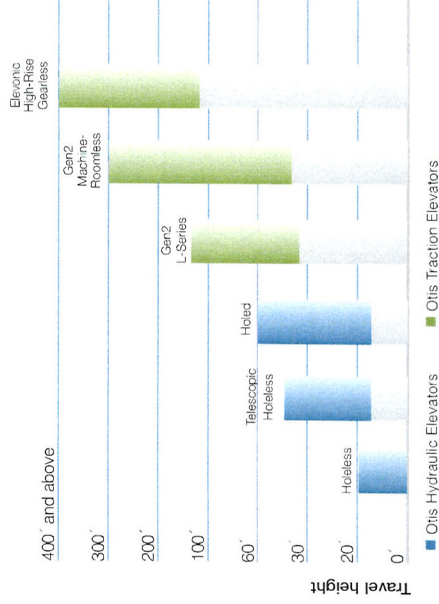
Otis E-Z Elevator Selection Process

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 Elevating 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.

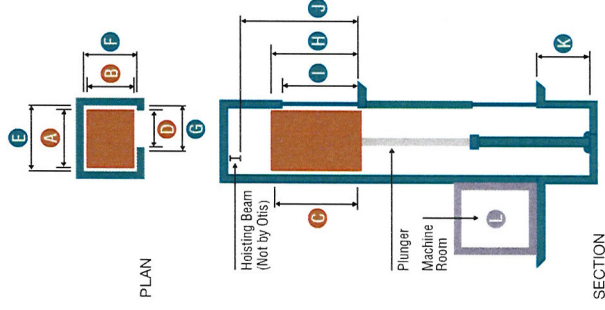
Holeless Hydraulic

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

Rated lbs.	Passenger elevators				Service elevators			
	2000	2100	2500	3000	3500	4500	5000	5000 AIA
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	5	6	7	8
Width x depth	5'-9" x 7'-4"	11'-6" x 8'-6"	17'-0" x 8'-6"	22'-0" x 8'-6"	27'-0" x 8'-6"	32'-0" x 8'-6"	37'-0" x 8'-6"	42'-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 5/8" to depth for 2000 to 3500 lb. capacities; add 8/8" 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".

United States

Alabama	Birmingham Mobile	(205) 982-8000 (251) 433-0034
Alaska	Anchorage	(907) 278-4575
Arizona	Phoenix	(602) 431-1181
Arkansas	Fayetteville Little Rock	(479) 521-5750 (501) 312-7600
California	Anaheim Los Angeles North Highlands San Diego San Francisco Sunnyvale	(714) 758-9593 (323) 342-4500 (916) 344-2080 (858) 560-5881 (415) 546-0880 (408) 328-0330
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Connecticut	East Hartford Shelton	(860) 289-7600 (203) 944-0160
Delaware	Wilmington (Moorestown, NJ)	(856) 235-5200
Florida	Ft. Lauderdale / W. Palm Beach Jacksonville Miami Lakes Orlando Pensacola Sarasota Tampa	(954) 485-6501 (904) 296-6847 (305) 816-5740 (407) 438-3633 (850) 473-1244 (941) 342-4900 (813) 251-1841
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Hawaii	Savannah	(808) 599-1111
Illinois	Honolulu Chicago Lombard Peoria Springfield	(312) 454-1616 (630) 889-2800 (309) 693-8131 (217) 544-4633
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Massachusetts	Needham (Boston) Springfield Worcester	(781) 433-8600 (413) 733-5115 (508) 757-4597
Michigan	Farmington Hills Grand Rapids	(248) 473-4530 (616) 975-3022
Minnesota	Roseville (Minneapolis)	(651) 697-7800
Mississippi	Metairie (LA)	(504) 846-2300
Missouri	Springfield St. Louis	(417) 889-5515 (314) 533-7070
Nebraska	Omaha	(402) 733-2910
Nevada	Las Vegas Reno	(702) 740-4777 (775) 322-5411
New Jersey	Fairfield Moorestown	(973) 575-8670 (856) 235-5200
New Mexico	Albuquerque	(505) 345-8189
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Smithfield	(401) 232-7282
Greenville Myrtle Beach North Charleston West Columbia	(864) 675-9400 (843) 448-4471 (843) 529-9502 (803) 739-8013

Tennessee

Chattanooga Knoxville Memphis Nashville	(423) 899-6633 (865) 525-0282 (901) 527-0291 (615) 254-3496
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Vermont

Burlington	(802) 863-3675
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Bahamas

Nassau	(242) 393-1885
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Manitoba

Winnipeg	(204) 783-0464
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New Brunswick

St. John	(506) 634-1393
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Newfoundland

St. John's	(709) 576-4110
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Northwest Territories

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Nova Scotia

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Ontario

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Prince Edward Island

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Saskatchewan

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Guam

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Puerto Rico

San Juan	(787) 765-4969
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