



**Facility Renewal and Redevelopment Strategy
for the
City of Winnipeg Archives and Records Control
Location: 380 William Avenue**

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Produced by Cibinel Architects Ltd.

in collaboration with

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1.0 Executive Summary

The City of Winnipeg Archive Building at 380 William Avenue requires an extensive renovation to upgrade the heritage property for current and future use as a storage and processing facility for the City of Winnipeg's permanent archival holdings. Cibinel Architects Ltd. was engaged to review the existing building and program, and develop an upgrading plan within a capital investment of \$3 million over a six year period.

All of the work suggested in this study is summarized in the drawings and financial analysis included in this report. As separate projects, the work identified totals \$7.5 million (including soft costs) in 2010 dollars. Through meetings with the project team and the building committee, the projects were prioritized into a \$3 million scope that can be phased over six years.

The focus of this capital project is the creation of a climate controlled archival vault with the capability of preserving artifacts from Winnipeg's history for the foreseeable future. Subsequent construction and restoration work is also recommended outside the archival vault, in order to enhance the building's functionality regarding the processing of material, as well as for administrative and public functions.

A comparative cost for a single phase of construction is also demonstrated in this report. As a single phase, the project would be substantially more cost effective when compared to the effects of inflationary values of phased construction projecting six years into the future. In addition to the inflation costs shown, are substantial costs linked to logistical complications of mobilization and remobilization, transport and relocation of the existing holdings over an extended period.

2.0 Current Building & Facility Review & Assessment

2.1 Introduction

The City of Winnipeg archival collection is currently located at 380 William Avenue with some of the non-permanent collection being stored at a warehouse on Ross Avenue. The building located at 380 William is the focus of this study. The Ross Avenue building was not visited or considered in this study.

Building History

The Archive building, located at 380 William Avenue, was funded by the Carnegie Foundation, designed by Samuel Hooper and erected in 1903 as Winnipeg's first public library building for a total of \$75,000. The Archives building is a restrained design characterized by elements of the Greek and Roman Orders. The exterior walls are of smooth, grey limestone with a rusticated base. The detailing is sparse, except for the main entry to the building that features a pedimented portico, framed by Ionic columns.

The original construction documents indicate a square, two storey building with a 7,650 ft² footprint. A 44 foot x 85 foot addition was drawn up by Walker and Hooper Architects and was added in 1908 to the back of the building to accommodate the huge demand for books that was experienced in the first 5 years.

In 1940, plans were drawn up by the City of Winnipeg Engineering Department to have concrete piles bored to hardpan to underpin the existing footings. In 1959, Ward and MacDonald Architects completed drawings to have a passenger elevator incorporated into the building. The plans also included a mezzanine structure between the main and second floors with a knockout in the wall for a future mezzanine that was later added above the second floor.

Drawings indicate that in 1960, the City upgraded the building's electrical system to a 600 Amp service, and upgraded much of the wiring. New fluorescent lighting was added throughout most of the spaces. The building stopped functioning as a library in 1977 when the Millennium library was constructed but was reopened less than a year later after much public outcry. At this time, a pilot project was undertaken to move records out of town halls and civic buildings in the amalgamated municipalities and consolidate them in the basement of 380 William Avenue. In 1988, Action Consulting Engineers Inc. completed drawings to have the electrical and mechanical systems extensively upgraded. The building continued to function as a library on the upper two floors until 1994 when the entire building was dedicated to archival holdings.

Numerous architectural changes have occurred since the building opened its doors in 1905, beginning with the addition that nearly doubled the size of the building in 1908. In 2005 LM Architectural Group produced an architectural building assessment report that outlined items requiring immediate rectification. Some of these items have been completed; some are under construction or in the design phase and will be noted in the following sections.

2.2 Architectural Technical Review

Exterior

Foundation

- The 2005 report noted that the multi-wythe limestone foundation walls were experiencing moisture penetration in various locations causing moisture controllability and freeze-thaw deterioration issues. This issue has been addressed recently with the application of a moisture barrier on the exterior and additional drainage. The foundation appears to be in good condition.

Walls

- Extensive building envelope analysis was performed in 2005 and subsequent recommendations relative to the exterior limestone were made. The re-pointing of mortar and the repair of masonry cracks has been completed.

Roof

- The roof membrane is a combination of systems employing a four ply built-up asphalt and gravel system for the majority of the roof area, with a two ply torch-on SBS over a small gabled area. The roof was deemed in 'good to fair' condition in the 2005 report. Deficiencies that were observed at that time along the parapet and roof membrane connection have yet to be rectified.

Windows & Doors

- Extensive air leakage and thermal value analysis was performed as part of the 2005 report and the results were such that the windows were a major source of the

buildings overall deficiency in providing thermal comfort to occupants, as well as a major contributor to deterioration within the wall envelope around the windows. Condensation occurring from interior moisture reaching its dew point at the window plane is the cause of massive sill, sash and frame deterioration of the original wood window construction. Windows were observed to be typically in poor condition.

- The exterior doors are not original to the building. Exterior doors are typically insulated or glazed doors in pressed steel frames. The exterior doors are in good condition, but should be replaced as part the City of Winnipeg's commitment to the building's heritage.

Interior

Basement Finishes:

- The wall finish is typically the interior face of the parged limestone foundation and painted brick masonry. Some original partitions exist.
- The original ornate tin panel ceiling finish remains however the addition of surface mounted electrical and mechanical conduits have obscured any character that the ceiling finish provides.
- The floor is unfinished concrete and has experienced some differential movement over time causing cracking in the finish. Original wood floors in the caretaker's suite and newspaper reading room have been removed.

Main and Second Floor Finishes:

- Typically finishes such as sheet vinyl and broadloom carpet are approaching the end of, or have exceeded their service life. These flooring finishes typically have sub-layers that have been added to the original finished floor.
- The original marble terrazzo floor finish and baseboard was observed in the current staff washroom areas at the south east corner of the building.
- Much of the original plaster and wood finishes including walls, baseboards, chair-rails, window sills and moldings have been painted. Original wallpaper in numerous locations has also been painted. The paint has peeled and flaked in many locations. In instances, wood paneling (circa 1970) covers plaster partitions.
- Ceilings in public areas are original to the building. Deficiencies in the plaster cornice detailing is apparent where the structure is deflecting. The original ornate lighting in the public areas was removed and replaced with utilitarian surface mounted fixtures during the 1959 renovation. The fixture's aesthetics and quality of light are not in keeping with the heritage character of this building and should be replaced.
- Ceilings in staff areas are cable hung acoustic ceiling tile with integrated fluorescent lighting fixtures. The painted wallpaper above the ceiling level is partially detached from the plaster wall due to moisture. Numerous water stains on the acoustic ceiling tiles were observed. Acoustic ceiling tile was observed to be generally in poor condition.

Stairs & Elevator:

- *Grand North Stair:* The front entry stair has not been modified substantially from the original design and is furnished with marble stair treads and risers, marble wainscoting and baseboards. Stair landings are marble terrazzo, while newel posts, handrails and balustrades are constructed from wood but have been painted to alter their original

appearance. The floor finish is cracking in numerous locations however it doesn't appear to be a safety risk at this time. A single steel handrail has been added to the centre of the stair and is in contrast with the original design. The stair is in poor condition.

- *East & West Stair:* Newel posts, handrails and balustrades are constructed from wood and possess much of their original character, with the exception that the wood finish has been covered with paint. In instances, a metal stair nosing and a vinyl surface has been added to the tread. The stairs are in poor condition.
- *Mezzanine Stairs:* The stair provides access to main, second and mezzanine levels of the archival area. Constructed of steel, this stair was part of the 1959 renovation accompanying the installation of the mezzanines. Alternate straight run steel stairs allow for secondary access to the mezzanines but do not penetrate the original floor levels. These stairs are in good condition.
- *Elevator:* Installed as part of the 1959 renovation, the elevator functions as a passenger elevator and provides access to all floor levels of the building. The elevator finishes are in fair condition.

Shelving and Storage:

- Basement level mobile shelving units are experiencing operational difficulties due to differential movement of the concrete floor.
- Exploratory work that was completed as part of the 2005 report determined that there was no vapour protection on the underside of the slab. Control of humidity is therefore difficult.
- Static adjustable steel shelving currently occupies the main stack areas (main, main mezzanine, second, second mezzanine levels) and the majority of the second floor's open area. The shelving is in good condition.

Interior Windows & Doors:

- Where interior windows and doors are in original openings they are typically the windows and doors that were originally installed in the building. The original wood stain finish on all windows and doors has since been covered with multiple layers of paint. Much of the original door and window hardware finish has not been painted. Interior windows & doors are typically in fair condition.

Barrier Free Accessibility

- The construction of an exterior wheelchair access ramp in 2010 has provided barrier free accessibility to the base of the stairs at the main entry stair on the interior of the building. The City of Winnipeg has indicated that plans exist to provide an interior wheelchair lift to complete barrier free accessibility to the main level. Once on the main level barrier free access to all levels will be available through the existing elevator.
- The recent renovation of the main floor public washrooms has incorporated components for barrier free accessibility. The remainder of the building has changed very little from the original design and does not meet the barrier free design standards for new buildings.

2.3 Structural Review

Crosier Kilgour & Partners completed a detailed analysis of the Archives building in 2005. As part of this study, they provided structural designs for the costing analysis of the suggested upgrading projects. The drawings included in Appendix A, and the following commentary, focus on upgrading the floors for archival loading;

- The basement floor is a grade-supported concrete slab. The slab shows signs of historical movement that is primarily a result of changes in moisture content of the underlying soil. While slabs-on-grade have the ability to support significant uniform loads, the effect of concentrated loads (such as posts from traditional shelving units or rails from compact shelving systems) must be carefully considered on a case-by-case basis depending on the planned use of the space. Slab-on-grade capacity is more of a serviceability issue than a safety one; there is no risk of collapse, but unwanted movement can limit the function of the space.
- Main and second floors are constructed from wood joists that bear on either masonry load-bearing walls or steel beams. The joists, in general, show signs of excessive deflection; partially due to long-term creep, but also likely due to instances in their history of being overloaded. The 2005 structural investigation by Crosier Kilgour & Partners recommended that the loading in place at the time be reduced to levels more in line with the floors' theoretical capacities. On the main floor, calculated capacities range from 55 pounds per square foot (psf) in northwest and northeast areas, to 75 psf in the south area beneath the mezzanine. Other areas of the floor have higher capacities. The second floor load capacities are similar to those on the main floor, except for the centre area on the north side, which does not benefit from a load-bearing wall below as it does on the main floor. In this area, the load capacity was calculated to be in the order of 45 psf, which is slightly under the 50 psf required by present-day Code for office occupancy.
- The mezzanine structures above the main and second floors were added subsequent to the original construction and were designed for a 100 psf live load.
- While no specific improvements are required with current building occupancy, increasing the capacity of any of the floor areas could be achieved through reduction of spans and the introduction of new bearing lines. Depending on the extent of the improvements, foundation work may also be required. A compact storage system (proposed for the vault area of the building) will result in a live load of approximately 150 to 200 pounds per square foot. To achieve this, new steel framing is required to cut joist spans in half and increase capacity. The new beams would bear into existing brick walls and on new steel columns that would be installed down to the foundation level. The requirement for additional pile installation would be confirmed once the design requirements are finalized and geotechnical input is provided. Similarly, the mezzanine structures would require strengthening. Because of the structural configuration of these areas, the loading capacity of the floors would be increased, by a reduction in the joist spacing. It should be noted that the additional structure will affect headroom in the areas in question, limiting the height of storage available to occupants.

2.4 Mechanical Review

The intent of this report is to provide an assessment of the existing mechanical systems in the context of proposed renovations to the building including an upgrade to archival standards. The site reviews consisted of visual observations of the mechanical systems where exposed or accessible.

Building History – Mechanical Systems

From the records provided by the City of Winnipeg, the heating, ventilation, and air conditioning (HVAC) systems in this building were extensively reworked in 1988. This conversion included a new boiler, air handling unit, chiller, hot water piping and radiation, and fan coils. A minor interior renovation was done in 2008 for barrier-free upgrades to the washrooms, which included the replacement of toilets and lavatories, and some re-work of the washroom exhaust. In response to some of the recommendations in the Crosier Kilgour & Partners report of 2005, several new sump pits with pumps were installed in the basement, with piped discharge to grade.

Plumbing Systems

Roof Drainage

- The roof drainage consists of a single roof drain and an 8" cast-iron rainwater leader that is located close to the centre of the building, just inside what is currently the archival storage area. No deterioration of the piping was noted from the exterior, however given the age of the piping it is quite likely that corrosion has occurred on the inside of the pipe, and if it were to be a problem would most likely be noticed at the base of the stack or at the horizontal run below the floor.

Sanitary Drainage

- Where exposed, the sanitary drainage piping material was observed to be cast-iron and copper piping. The main vent in the attic is cast-iron, and is not insulated in the attic space.

Domestic Hot and Cold Water

- Domestic hot and cold water piping is generally copper piping, Type L. The domestic hot water heater is a 60 gal. tank, electric heat, and appears to be in relatively good condition.

Plumbing Fixtures

- The plumbing fixtures in the men's and women's washrooms on main floor were replaced in 2008 when a barrier-free washroom upgrade was completed. The toilets are low-flow flush-tank toilets, and the lavatories are china lavs with manual faucet.
- The remainder of the building has a mix of plumbing fixtures for staff washrooms, staff lunch areas, and some service sinks. There is a shower stall in the basement washroom, but it does not appear to be in use.

Fire Protection

- There is currently no automatic fire-protection system installed in the building.

Heating, Ventilation and Air Conditioning

Heating Systems

- The HVAC conversion in 1988 converted the heating system in the building from steam to hot water radiation. A new boiler system was installed at the time, along with entirely new pumps and distribution piping. Generally, new fan coils and radiation were installed in most locations.
- In the “Heritage” areas of the main floor, the original steam radiators were re-used and connected to the new hot water system. In the southerly areas, the perimeter heating units installed were 2-pipe fan coil units mounted on the floor below the windows (likely in place of the former steam radiators). On the second floor there is continuous wall-fin radiation around the perimeter of the north half (non-vault areas) of the building.
- The boiler system consists of a bank of six manifolded cast-iron sectional boilers, Slantfin 8 bhp each. These are mid-efficient boilers, and have a published median service life of 30 – 35 years. The circulator pumps are in varying conditions, and will have had maintenance over the years, which is typical for pumps in this service. If any renovation of the heating system takes place, it would be prudent to replace the pumps.
- Although over 20 years old, the heating system generally is in good condition with the exception of the boilers & pumps. A boiler replacement should be planned, and this would give the opportunity to upgrade to a more energy efficient boiler system. Until this upgrade is undertaken, there is good redundancy with the existing boilers since there are six units, so it is unlikely that the entire system would be down for repairs even if one of the boilers has problems. If there has not been a history of maintenance and repair issues with the boilers, they are probably good for several more years of service.

Ventilation

- The 1988 upgrade also included the installation of a new central air handling unit in the basement mechanical room as well as several ducted fan coils to distribute air in zones in the basement, main, and second floors. The main air handler distributes ducted ventilation air to the ducted fan coil units on all three floors. No ventilation air is supplied to the floor-mounted fan coils at the perimeter.
- The main air-handling unit is a Mark-Hot Model CSAH 56, and has a single heating/cooling coil, filter section, mixed air damper section, and supply fan. The unit is designed for 5,000 cfm of air. There is a fresh-air intake just outside the mechanical room on the south side sized for the full 5,000 cfm, and similarly the return grille in the basement can return up to 5,000 cfm. Although the control sequences haven’t been verified, it is assumed from the design that the unit is intended to provide 100% outside air for ventilation purposes when the building is occupied, and can be adjusted via the dampers to mix or go to 100% return air when unoccupied to save energy.
- The air handling system has a humidification section. The humidifier is a Nortec electric-to-steam unit, Model MP-700, 40.8 kW. The humidifier is in good condition.

Air Conditioning

- The chiller that was installed in 1988 is a McQuay Model WHR050DW, with an evaporative cooling tower located outside at grade. The chiller is based on R-22 refrigerant. This is an HCFC refrigerant, which is being phased out due to ozone-depleting properties.
- Based on ASHRAE data for equipment service life, the chiller and tower have an expected

median service life of 20 – 25 years. However, the chiller is a large-cost item, and it may be strategic to continue operation with this chiller for a few more years to defer to the replacement cost. When this chiller and tower are replaced, the new chillers are significantly more energy efficient, so there would likely be some savings in associated utility costs. Also, there are currently incentives available from Manitoba Hydro for energy-efficient chillers.

- The chiller and boiler rooms are interconnected with an open doorway. To comply with codes for the chiller machine room, the arrangement of the chiller and boilers, and the chiller room ventilation system should be reviewed and may need to be changed to comply with code.

Controls

- The existing controls are pneumatic. Although the system is fairly simple, it is likely easy to maintain and operate. Ongoing maintenance and replacement of the actuators should be expected. The air compressor is loud and causes noise concerns for the space above the chiller room. The compressor is probably in fair condition given its age, but could be replaced with a quieter unit. Unless the majority of the terminal units are being replaced, it probably makes sense to keep the existing controls system, and add to it if necessary for new equipment.

2.5 Electrical Review

The electrical review is based on a visual non-intrusive inspection. Existing electrical drawings were available, and were found to be reasonably accurate. The comments in this report are general in nature and are not the result of detailed investigation or testing. The electrical systems appear to be in fair condition. They are not completely suitable for the current building functions, in that they appear to have little spare capacity and are not well suited for expansion. The following specific items were noted;

Life/Safety Issues

- Emergency lighting and exit signage is sparse and does not meet current code requirements.

Electrical Distribution

- Service is a Westinghouse 347/600V, three phase, 4 wire, rated at 400 amps. The meter # is MH 801247.
- The electrical service utility is Manitoba Hydro. The building is fed from (3) 50kVA pole mounted transformers.
- The bulk of the electrical panelboards are located along with the main CDP in the main electrical room in the basement.
- The main CDP appears to have at least (8) 3 pole spaces available. Branch panels generally appeared to be nearly full with few additional breaker spaces.
- The main distribution and CDP are newer and in good condition. Original sub-panels are still located in some areas. Condition of these old panels and breakers is fair to poor.
- Existing service size is likely too small for the addition of any significant mechanical loads. Actual loads would need confirmation.

Fire Alarm

- A Mircom series 200 fire alarm system was present. Panel appears to be an eight zone panel with seven zones used. It was not tested at time of visit.
- Device locations appeared to be code conforming (smoke detectors in corridors and shafts, heat detectors in storage and mechanical rooms, manual pull stations at exits, etc.). Manual pull stations are installed above a height of 1200mm AFF. The existing locations would not meet current code for access by disabled individuals.
- Building is not sprinklered.

Lighting

Exit/Emergency Lighting

- Emergency lighting is accomplished with DC emergency lighting heads and battery banks. Lighting coverage is sparse and many areas would not meet current code minimums.
- Exit signs were observed to be retrofitted with LED lamps. Additional exit signs would be required to meet minimum current code requirements.

Lighting – Exterior

- Exterior lighting consists of three building mounted HID luminaires on the west side. Fixtures appear to be in fair condition. The front, back and east side of the building has no exterior lighting installed.

Lighting – Interior

- Interior lighting is generally fluorescent. Lamps appeared to generally be T12. These ballasts and lamps are being phased out with parts getting more difficult to source.
- A number of fixtures are missing lenses. A number of fixtures are not working.
- Light levels appeared to be on the low end of acceptable for intended room usage.
- Lighting control is generally with line voltage local switches. Switching was just recently added for public area lighting. Prior to this, circuit breakers were used for switching.

Power Outlets Etc.

- Receptacles appear to be generally located where required by code, however are minimal.
- Exterior parking receptacles are provided on the west side of the building.

Communication Systems

- No cable tray or J-hooks were observed to support the communication cabling. Cabling is generally fastened directly onto the surface of walls and ceilings.
- Building telephone service is fed overhead to the building.

Wiring Methods

- The wiring methods used within the building are a mix of AC-90 and conduit/wire. Both are acceptable for this building construction.
- For the most part workmanship associated with the electrical installation is fair. Surface wiring was observed in many areas and was not always neat and tidy.

Security

- The building has a DSC security system with keyed arm/disarm.
- Motion detectors and door contacts are visible.
- Old and obsolete window glass break sensors were observed.

Emergency Power

- The building does not have an emergency generator.
- Building emergency lighting and the fire alarm panel are backed up with batteries.
- Upon power failure, the building mechanical systems stop operation.

2.6 Building Code Assessment

The existing building, when evaluated under Part 3 of the current Building Code, does not comply with standards set forth. The 2005 Architectural Building Assessment Report outlined the shortcomings of the building relative to its function by Building Code standards. The existing building and current function has not been significantly altered since. The building can continue to operate as-is, provided that the City of Winnipeg deems that the current life safety measures are being maintained and are adequate. When significant renovations or alterations to the building occur (ie. changing egress patterns, constructing new walls and doors) the work will be subject to the *Manitoba Building Code*, which states:

1.3.5 Limited Application to Existing Buildings

1.3.5.2 Alterations and Repairs

- 1) This Code applies to the part of an existing building that is altered and repaired. If, in the opinion of the authority having jurisdiction, the alteration will affect the degree of safety of a part of the existing building not altered or repaired, those parts of the existing building shall be improved as required by the authority having jurisdiction.*
- 2) If a building is altered or repaired, the level of life safety and building performance shall not be decreased.*

The upgrade & renovation plans in this report show the building being significantly altered and repaired. The following represents a general overview of the major fire and life safety requirements from Part 3 of the Manitoba Building Code (MBC) that may be considered during this upgrade project.

The renovation of historic structures is a balance between the preservation of aesthetics and character, and the Building Code's prescriptive levels of occupant safety and property protection. Discretion must be employed to determine when the full application of the Building Code will apply to the various areas of the building and scope of the renovation work. Proposals in this report represent our professional opinion on acceptable measures based on experience with similar projects. The Authority having Jurisdiction may accept or reject any of these proposals. Generally, with properties such as this, provided that the current level of life safety and building performance is maintained, planning authorities will allow areas of non-compliance to remain ('grandfathered').

Basic Construction Requirements

The scope of the renovation work proposed in this report consists primarily of environmental and cosmetic improvements, the installation of a sprinkler system within the vault area, construction of full floor assemblies within the vault mezzanine areas, infill openings of the rear building face, and the possible construction of a new fire separated exit stair. The occupancy use of the building is not being changed;

In order to extend the vault mezzanine assemblies into full floors, the applicable construction requirements would be found in Article 3.2.2.24 and involve the provision of:

- non combustible construction
- automatic sprinkler protection
- floor assemblies constructed as fire separations having a fire resistance rating of 1 hr
- load bearing assemblies constructed with a fire resistance rating of 1 hr

Fire Separations

Under explicit application of the Manitoba Building Code, fire separations would be required in the following areas:

- New Exit Stair – 1 hr (Article 3.4.4.1.) See egress and exiting section for further comment re: existing exits
- Combustible Refuse Storage – 1 hr (Article 3.6.2.5.)
- Service Rooms Containing Fuel Fire Appliances – 1 h (Article 3.6.2.1.)
- Janitors Rooms – 1 hr (Article 3.3.1.21.)
- Vault Area – 2 hr (Manitoba Fire Code Article 3.3.1.12.) This may be applicable based on the use of the space and the extent of work being conducted in the area
- Elevator Hoist way and Machine Room – 45 min (Article 3.5.3.1. and 3.5.3.3.)
- Vertical Shafts – 45 min (Article 3.6.3.1)
- Floor Assemblies – 1hr
- Article 3.1.8.5 of the MBC requires openings within a fire separation to be protected with closures having a fire-protection rating. In these 1 hr instances it would be 45 min and in the 2 hr instance it would be 1.5 hr. Where a fire door is used as a closure, it is required to be equipped with self-closing and positing-latching hardware.

Not all of the Code requirements may be necessary, since some building components may be 'grandfathered'. However, in an unsprinklered building, there is a heavy reliance on compartmentalization and any upgrades would enhance the current level of life safety. This strategy can be investigated further with the planning authorities, once the project proceeds into design development.

Spatial Separation

The only concern with respect to spatial separation is at the south face of the building, and this is being addressed through a proposed window infill.

Egress and Exiting

Articles 3.4.2.1. and 3.4.2.5. of the Manitoba Building Code require all floor areas to be served by at least two exits, with at least one exit located within 30 meters from any floor area. Since the building use will not be changed, the occupant load will not be increased and the number of exits will not be reduced we can rationalize that the existing exiting configuration, including the use of the feature staircase, may be grandfathered. If a new exit stair will be constructed, it should have a 1 hr fire separation from the remainder of the building.

An alternative compliance could also be proposed, based on the approach found in NFPA 101, Chapter 43.10 "Historic Buildings". This standard permits unenclosed stairways in historic buildings provided they only serve one adjacent floor (i.e. two upper levels being connected, the basement being fire separated, and the stair being considered a convenience route).

In regards to the proposed extension of mezzanine assemblies within the vault, these areas would initiate application of the Manitoba Building Code. These new floor areas will not qualify for the mezzanine egress exceptions noted in Sentence 3.4.2.2.(2). This is due to the physical size of the mezzanines relative to the footprint and the open area of the vault. Given the low occupant load and public access restriction for the mezzanines, a performance-based solution may be pursued.

Article 3.4.5.1. of the Manitoba Building Code requires each exit to have an exit sign placed over or adjacent to it and visible from the exit approach. Exit signs are required to; have the word "EXIT" displayed in plain legible letters, be continuously illuminated, and be served by emergency power circuits with an emergency power supply. Signage should be upgraded as necessary throughout the building.

Emergency Lighting and Power

The Emergency Lighting and Power in this building should be upgraded to the following;

Article 3.2.7.3. of the Manitoba Building Code requires emergency lighting to be provided with an emergency power supply, which is required to provide an average level of illumination not less than 10 lx at floor or tread level in the following locations: Exits, principal routes providing access to exit in open floor areas and from service rooms, and corridors used by the public.

Article 3.2.7.4. of the Manitoba Building Code requires emergency power, from a power source such as batteries or a generator, to maintain lighting for a period not less than 30 min. The emergency power supply serving the fire alarm system is required to be capable of providing supervisory power for not less than 24 hr, and a full electrical load for not less than 30 min immediately following that period.

Fire Detection and Alarm System

Subsection 3.2.4. of the Manitoba Building Code requires this building to be served by either a single or two stage fire detection and alarm system. Detection is required to be provided by:

- Electrical supervision of the sprinkler system,
- Smoke detectors located at the top of exit stairs and in air-handling systems serving more than one storey,
- Manual pull stations at every exit,
- Fire detectors located in elevator hoist ways, service rooms, janitor rooms, and storage rooms.

Fire alarm zoning is to be consistent with the sprinkler system.

A fire alarm annunciator panel is to be located near the fire department response point. Notification is to be provided by audible signaling devices throughout all floor areas. Audible devices are required to be supplemented by visual signaling devices in any floor area having an ambient noise level greater than 87 dBA, or where occupants may be wearing ear protection or have impairments.

Whereas there is a heavy reliance on fire alarm in unsprinklered buildings, consideration should be given to see the building meets the above requirements.

Sprinkler and Standpipe Systems

Articles 3.2.2.24 and 3.2.5.13 of the MBC require the building to be served by a sprinkler system designed, constructed, installed, and tested in conformance with NFPA 13, "Standard for Installation of Sprinkler Systems". This would apply for the vault area where the mezzanine is extended.

With the installation of the mezzanine/floor assemblies, the requirement for a standpipe system will have to be addressed, since the building would now be greater than 3 storeys in building height.

(Article 3.2.5.8.)

Fire Department Access

The requirements of Article 3.2.5.6. of the MBC for a roadway provided for fire department access can be met by the current site configuration.

Fire Safety Planning

Section 2.8. of the Manitoba Fire Code requires that the building owner develop and maintain a fire safety plan document that includes; posted evacuation drawings, posted instruction for action upon discovery of smoke/fire and hearing a fire alarm. Drawings should show major fire safety components, maintenance requirements for all fire safety components and systems, and procedures for fire drills.

2.7 Spatial Assessment

A number of meetings were conducted on site and with existing staff, in order to determine the spatial requirements necessary to execute a schematic design that addresses the short & long-term goals for the facility. The 2009 City of Winnipeg Records Committee Discussion Paper outlining program requirements for the property was referenced in this work. The schematic design pursued the principles outlined in 3.1 of that report.

Spatial Needs Assessment Table

level	room name	±area /sf	new function	upgraded space	description
lower level					
	archival file area	3 722		x	long term non-climate controlled archival storage
	archival supplies	236	x		typical store room
	triage / isolation	192	x		immediate treatment area for newly arriving documents
	shipping & receiving	360		x	modification of existing to suit new scissor lift
	mechanical	416	x		new mechanical equipment area
	mechanical & electrical	840			equipment upgrades
	janitor	181			no improvements allocated
main level					
	research area	1 421		x	public area to receive updated storage & refurbishment
	audio visual pod (AV pod)	121	x		acoustically controlled room
	reception	829		x	upgrades to include a new reception functions
	multi-purpose room (MPR)	1 533	x		no exclusive to, but intended for, use by large groups
	MPR break-out space	271	x		subsidiary space to MPR for intimate workgroups
	MPR kitchen	184	x		to function as a catering kitchen for MPR
	existing water closets	130			recently constructed by C of W, no improvements allocated
	new water closets	104	x		barrier-free gender designated washrooms for use by MPR
	office space	405		x	upgrade and re-design of current office space
	climate controlled vault (CCV)	2 391		x	upgrade to include independent thermal & moisture control
main mezzanine					
	climate controlled vault (CCV)	2 391		x	upgrade to include independent thermal & moisture control
	-new floor area in CCV	620	x		new structural floor infill constructed to enhance storage
second level					
	archival offices	764		x	space refurbishment, reconfiguration & upgrade to existing function
	record management offices	754		x	space refurbishment, reconfiguration & upgrade to existing function
	record management work room	1 150		x	space refurbishment, reconfiguration & upgrade to existing function
	archival work room	1 170		x	space refurbishment, reconfiguration & upgrade to existing function
	project room	547		x	space refurbishment, reconfiguration & upgrade to existing function
	staff lounge	255	x		staff gathering space
	kitchen / lunch area	249	x		staff kitchen and eating area
	staff water closets	104		x	upgraded barrier-free gender designated washrooms for staff
	climate controlled vault (CCV)	2 391		x	upgrade to include independent thermal & moisture control
second mezzanine					
	climate controlled vault (CCV)	2 391		x	upgrade to include independent thermal & moisture control
	-new floor area in CCV	620	x		new structural floor infill constructed to enhance storage

The Archive Building at 380 William Avenue is intended for records of permanent archival value. The holdings are steadily growing and the Archive is out of storage space. The nearby Ross Avenue warehouse, used to store scheduled records, is now used for the overflow of permanent records. The permanent holdings are currently estimated at 25,000 linear feet. Estimates for future growth require 60,000 linear feet.

Archival Space Analysis & Recommendations

Visioning meetings and site reviews of the building were conducted with the consulting team and the City of Winnipeg staff in March, April and early May, to discuss client needs and for the team to learn how the building and staff currently operate. This information allowed the consultants to gauge the impact of the existing conditions on the preservation of, and access to, the archival holdings. It was noted that functional, well-designed facilities would assist City of Winnipeg staff with both public service programs and the appraisal and description of the holdings (processing).

The City of Winnipeg 2002 Global Preservation Assessment, a 2002 Rosaleen Hill Conservation Services report on the 380 William Archive, was reviewed so that the top 10 recommendations could be addressed within the project. Since many of the report's recommendations refer to programs, the consultant recommended identifying current and future programs and infrastructural elements to facilitate future developments, as these determine use of the collections, and this in turn influences the design of the storage vault, receiving and loading area, and use of space in general.

Recommendation 8 of the Global Preservation Assessment was to upgrade all wood components in storage furniture to baked enamel or powder-coated metal. This was identified as a requirement for any shelving specified as part of the project.

Recommendation 19 of the Global Preservation Assessment was that City documents designated as 'archival' from their inception, should be created on permanent paper that meets ANSI/NISO standard Z39.48-1992. Alkaline process paper, which does not contain chlorine, lignin or any of the chemicals used in the traditional acidic papermaking process is recommended. (See Earthchoice Office Paper attachment)

Government and private sector companies were contacted regarding their interest/ability in providing off-site storage for the City of Winnipeg records during the renovation phase of the project, tentatively identified as sometime in 2012. Both federal and provincial government records centres expressed interest and anticipated sufficient capacity. The City of Winnipeg is considering a massive archival assessment project, once the materials have been moved out of 380 William for the renovation. This will enable the holdings to be culled so that only records of permanent archival value are returned to the renovated vault. This process will include the use of an isolation room for triage, since the triage will sometimes uncover mould, rodents or insect life.

The Ridgen document, a 1997 Manitoba Heritage report on the 380 William Archive, mentioned insect activity that is probably continuing to this day, and newly-acquired records can always present a risk of insect infestation. As per recommendations #14 & #15 of the Global Preservation Assessment, the development of an Integrated Pest and Mould Management Strategy, using the Isolation/Triage room to examine new acquisitions is required.

It is also recommended that Archives staff update their Disaster Response Plan, since 75% of museum fires begin during construction or renovation projects.

A review of the records provided by Archives staff showed that the building becomes extremely dry in winter (>10% RH) while temperatures and relative humidity in the summer rise to 30°C and 70% RH. The City of Winnipeg archival records, which date from the 1870's, are primarily on medium to poor quality, chemically unstable paper that will deteriorate more quickly if temperature and relative humidity fluctuate or are elevated. The storage environment must be designed to meet the preservation needs of chemically unstable paper.

The recommended environmental requirements for the storage vault based on the preservation needs of the holdings, include a temperature setpoint that can be maintained below 18°C, concurrent with a relative humidity setpoint between 30% and 50%, ideally 16°C, +/- 2° and 45%, +/- 3%. If the HVAC controls allow, seasonal drift for the RH could be incorporated into the setpoints to reduce load and operating costs.

There were several team meetings in June and July to discuss building and vault design issues. There was some concern on the part of the engineers that the HVAC system would not be able to function at 18°C although these setpoints have been achieved in other institutions. The addition of a desiccant-bed dehumidifier to the Liebert HVAC units is proposed as back-up during humid weather, and to reduce wear & tear on the primary unit.

The existing (100 yr. old) roof drainage system that runs vertically through the Vault could present problems should it ever leak. An option to design the roof so that rainwater runoff drains away from the Vault was included in the costing analysis. Alternatively, the addition of water sensors to the fire alarm panel for the basement area would assist in the early identification of water infiltration.

Shelving Analysis Assessment Table

SHELVING	EXISTING (Lin. Ft.)	NEW (Lin. Ft.)
BASEMENT		
EXISTING COMPACT SHELVING	10,909	
PROPOSED REPLACEMENT COMPACT SHELVING		9,150
-PERIMETER OF SHELVING AGAINST EXTERIOR WALL		2,244
ALTERNATIVE STATIC SHELVING IN LIEU OF COMPACT SHELVING		5,447
VAULT		
EXISTING SHELVING	10,552	
PROPOSED COMPACT SHELVING		19,320
-PERIMETER OF SHELVING AGAINST EXTERIOR WALL		2,120
MAIN LEVEL (OUTSIDE VAULT)		
PROPOSED SHELVING IN PUBLIC AREAS		200
SECOND LEVEL (OUTSIDE VAULT)		
PROPOSED SHELVING IN WORK AREAS		1,335
GENERAL		
EXISTING SHELVING ON MAIN & SECOND FLOOR (TOTAL TAKEN FROM ARCHIVES ASSESSMENT CIRCA 1990)	8,454	
EXISTING SHELVING ON MAIN MEZZ.& SECOND MEZZ (TOTAL TAKEN FROM ARCHIVES ASSESSMENT CIRCA 1990)	3,060	
total	22,423	30,005

*NOTE: due to the size of the existing floor plate, archival shelving has been located in close proximity to an exterior wall in the schematic design. A reduction of the storage shelving by one storage bay would change the total amount of new linear feet of shelving to 27,885.

3.0 Upgrade & Renovation Plans

3.1 Introduction

The development of the design shown on the following pages involved a collaborative team consisting of the Client, User group, Architects, Engineers and an Archival Expert. A number of meetings were conducted, and through an iterative process, a single schematic was developed, that embodies all the principal ideas that were discussed as potential projects. Upon receipt of the pricing data, a final meeting was held in which the financial feasibility and cost analysis was conducted. The result of which is set forth in the later part of this section.

In order to create an Archival Vault to meet the needs of the City of Winnipeg and the requirements of the National Archival Standards, a new facility would need to be constructed. Applying twenty first century requirements within the constraints of a heritage building has serious limitations on the functional storage capacity, building envelope thermal continuity, fire protection of materials and occupants, user comfort and barrier free accessibility of users.

A thermal separation between the exterior and remainder of the building is necessary to ensure a dedicated mechanical heating, ventilation and air conditioning system will perform the function of a precise climate controlled space. Extensive retrofit measures are to be employed to isolate the space and form the bulk of the costs associated with this project.

A new roof is recommended as an alternative to the existing slope configuration as the current roof is drained through an internal pipe within the Archival Vault. This puts the archival materials at greater risk. The new roof will force rainwater drainage to occur through internal drains that are at the perimeter of the building.

A new sprinkler system will be added to the building in the Archival Vault area to aid in the fire safety of individuals within the vault and the protection of the archival holdings.

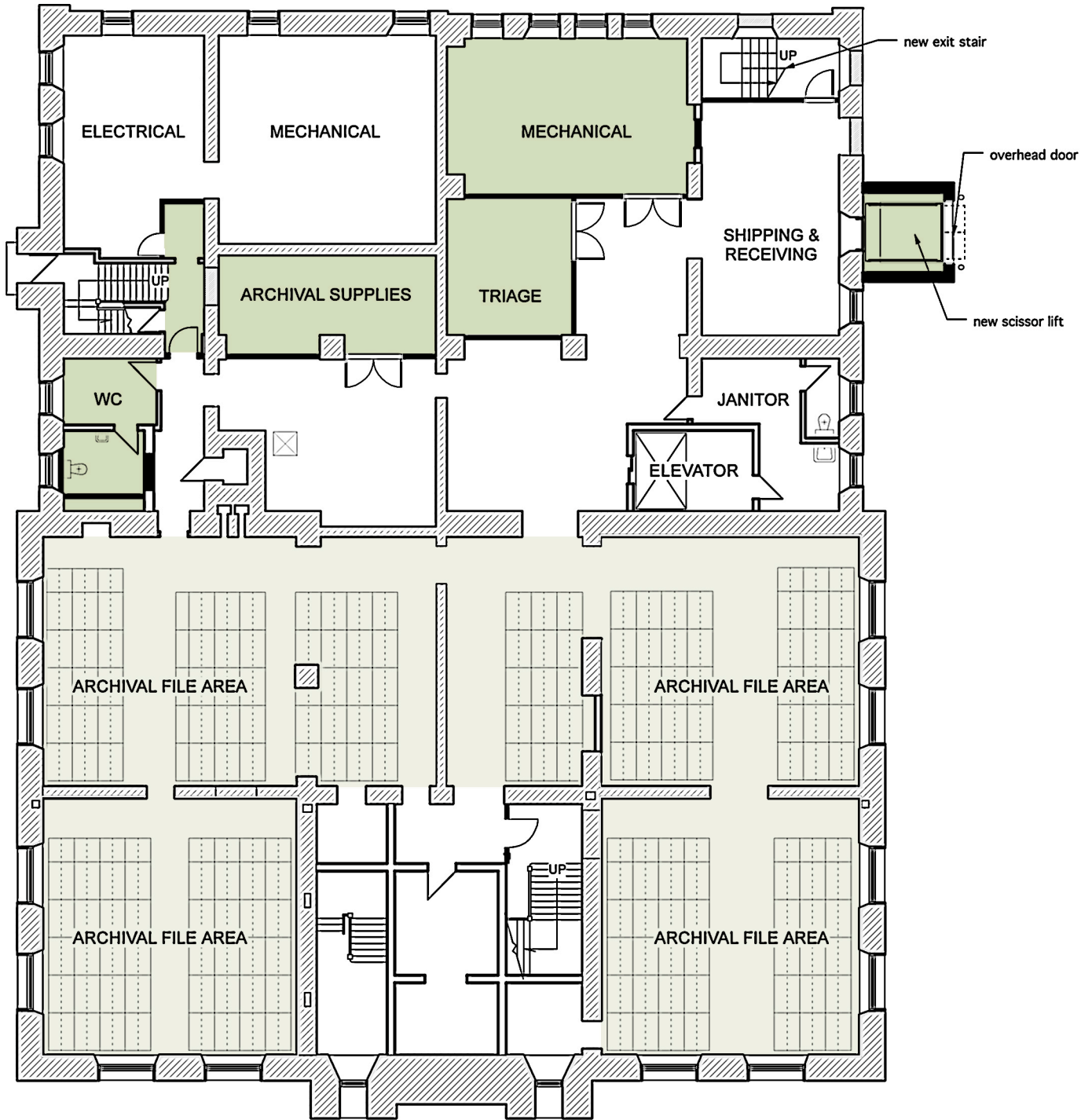
The level of safety of emergency egress of individuals is improved for public and staff areas. Improvements to include a new fire rated stair enclosure to service all levels and the upgrading or addition of fire rated doors and hardware, lighting and signage for existing egress routes.

Projects are currently underway to provide barrier-free accessibility to public areas of the building. The proposed renovation design will further enhance accessibility within the building.

The restoration of character defining elements will be completed with the addition of minor function elements in public areas.







Similar to the archival materials within it, the building has a rich history worthy of preserving for future generations to enjoy and study. The exhibition of archival materials will enhance the opportunity of the general public to visit, research, learn and enjoy this historical collection. The City of Winnipeg's current undertaking of capital enhancement projects to improve the functionality of this property could be enhanced with expenditures that ensure that the public spaces retain and regain the grandeur of the period in which they were constructed.

3.2 Basement Floor Plan

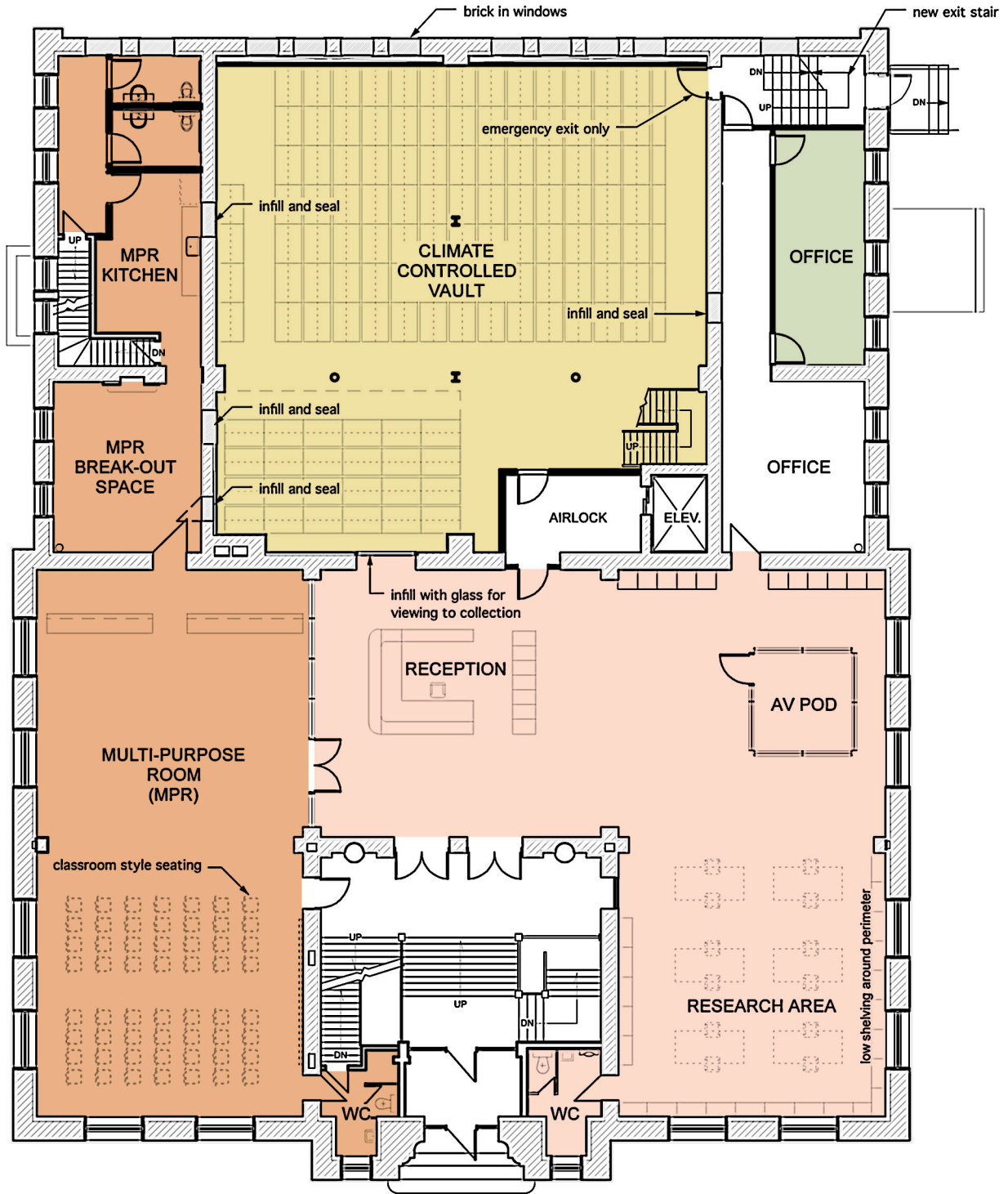



BASEMENT FLOOR PLAN
 Scale: 1" = 1/16"

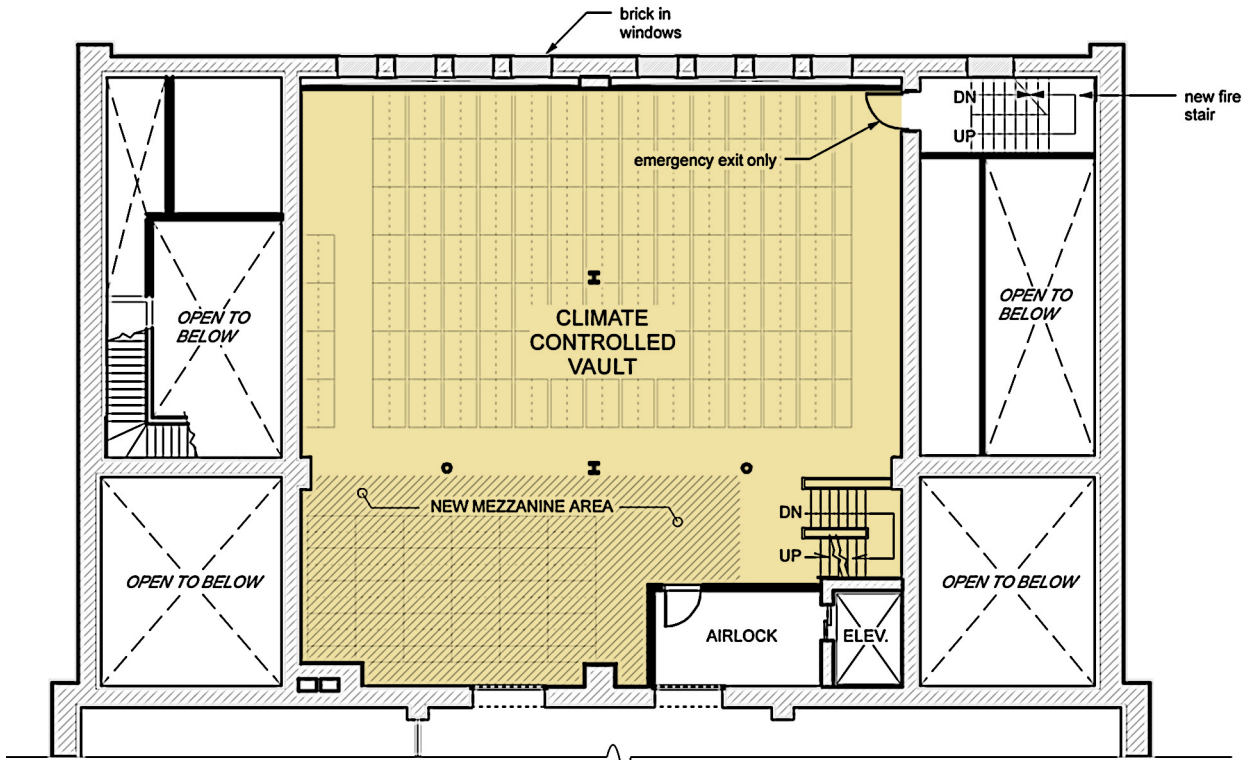
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
- | | | | | | |
|---|---------------|---|---------------|---|-----------------------|
|  | NEW DOOR |  | EXISTING WALL |  | EXISTING MASONRY WALL |
|  | EXISTING DOOR |  | NEW WALL |  | NEW MASONRY INFILL |

3.3 Main Floor Plan









 **MAIN FLOOR PLAN**
Scale: 1" = 1/16"

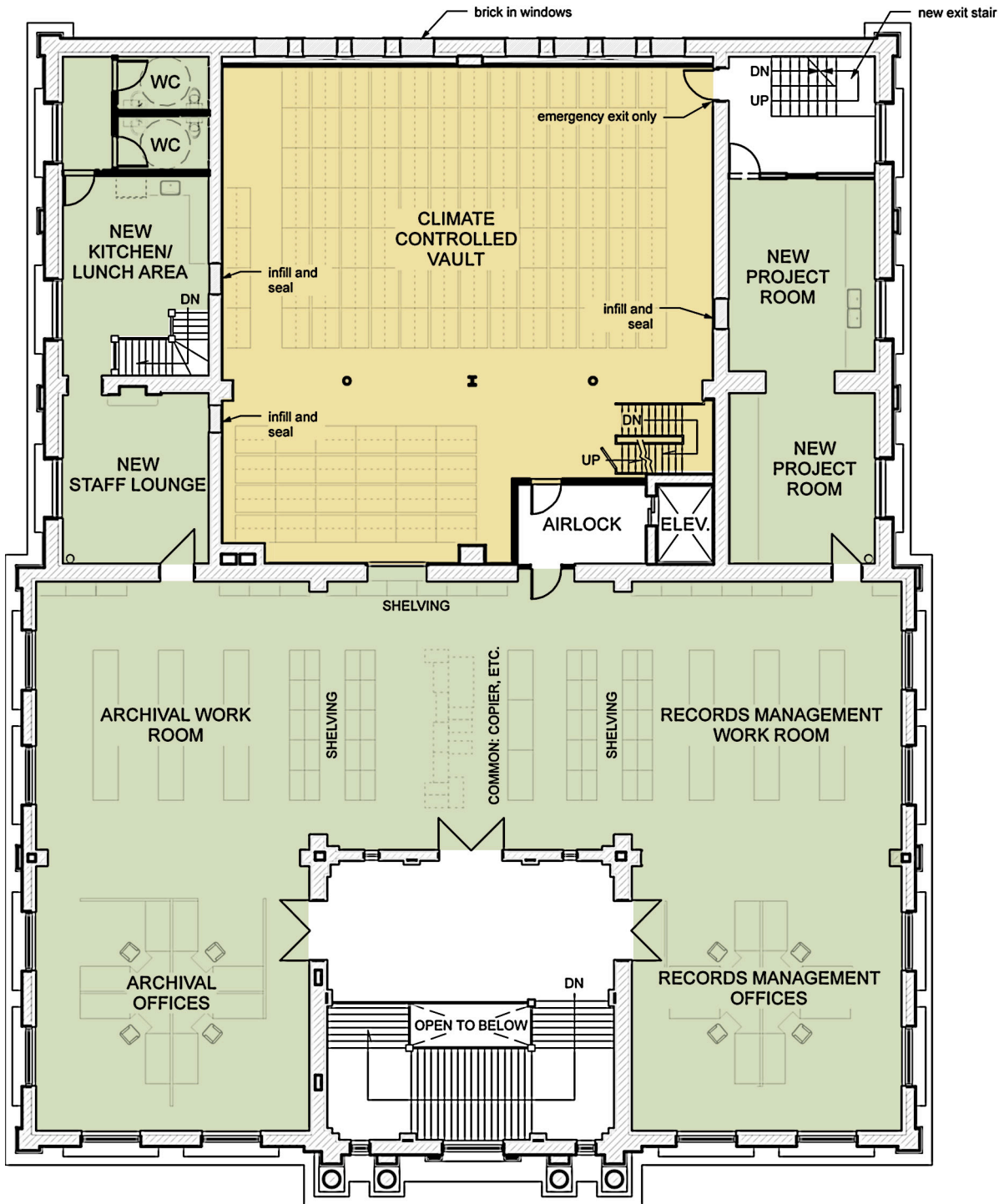



MAIN FLOOR MEZZANINE
 Scale: 1" = 1/16"

LEGEND:

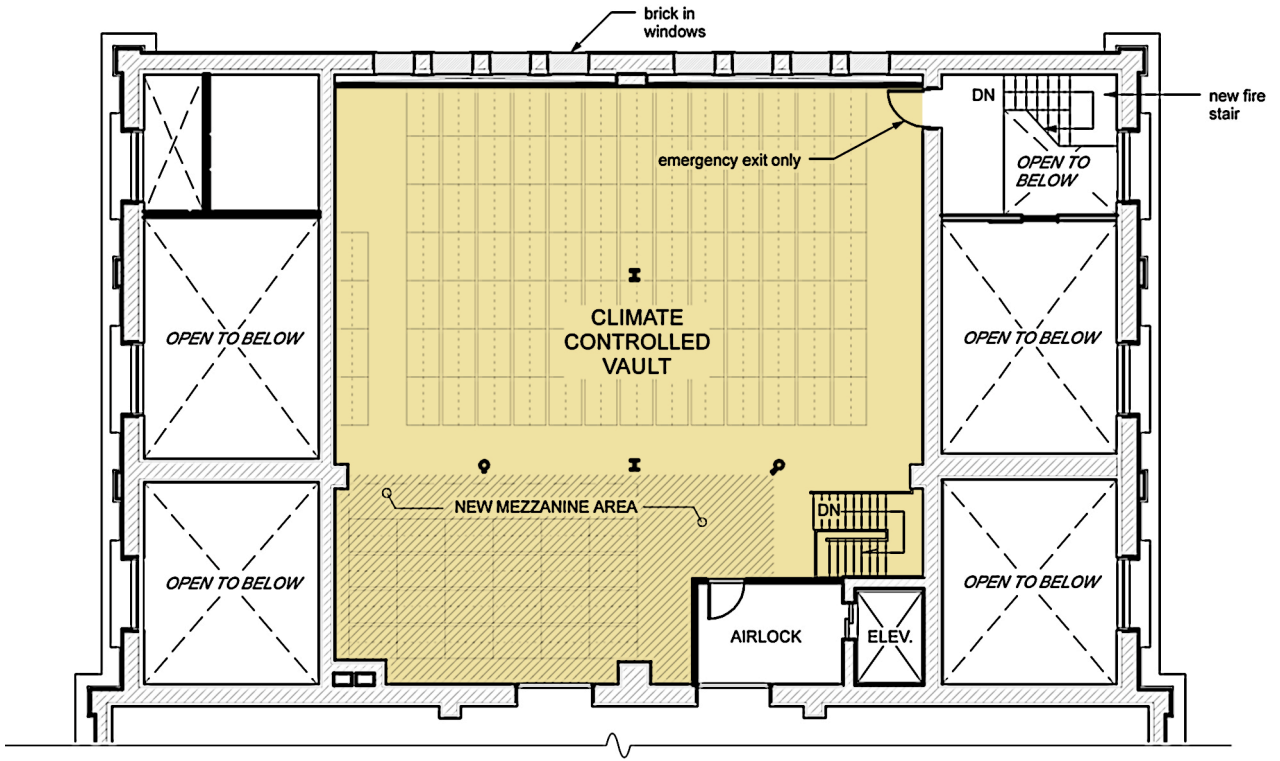
-  NEW DOOR
-  EXISTING DOOR
-  EXISTING WALL
-  NEW WALL
-  EXISTING MASONRY WALL
-  NEW MASONRY INFILL

3.4 Second Floor Plan









SECOND FLOOR PLAN

Scale: 1" = 1/16"



SECOND FLOOR MEZZANINE
 Scale: 1" = 1/16"

LEGEND:

-  NEW DOOR
-  EXISTING DOOR
-  EXISTING WALL
-  NEW WALL
-  EXISTING MASONRY WALL
-  NEW MASONRY INFILL

4.0 Financial Projection and Analysis Development

4.1 Introduction

The City of Winnipeg requested a prioritized list of projects that could be phased over a six year period whereby funding is committed at \$0.5 million each year. In order to do this, a master plan was developed, considering all of the possible upgrades that would reasonably contribute to making this a fully functioning archive building with the most efficient use of the existing building. That list of separate projects, summarized on the following page, totals \$7.5 million (including soft costs) in 2010 dollars.

The project team met to develop the list of projects and priorities that would suit a capital budget of \$0.5 million per year over a six year period. That list is summarized in Section 4.3, and demonstrates the effects of an assumed 3% annual inflation. In order to limit the project to no more than \$3 million, two of the projects are only partially completed; that being 90% of the proposed main and second floor renovations of secondary spaces, and 20% of the proposed building security, CCTV, fire alarm, communications, and access control systems (highlighted in green).

For comparison, Section 4.4 demonstrates the total number of projects that can be completed with \$3 million over a six-year period to the number of projects that can be completed for \$3 million if they were carried out as a single project. Note that in a side-by-side comparison, some of the projects in Scenario 1 (multi-phased six year project) are far more expensive than in Scenario 2 (single phase project). This is because of the effects of inflation on the projects in the later years. The end result is that, for \$3 million, the single-phase project includes compact shelving, a new fire stair, and base building mechanical upgrades that the phased project does not include.

Scenario 3 demonstrates the difference in the cost of completing all of the projects as separate projects, as opposed to the construction efficiency of a singular undertaking. What should be highlighted, that is not included in the costs shown, are the costs of operating that are due to inefficiencies in the phased approach as a result of relocation and remobilization efforts over such a long period of time.

4.2 Prioritized List of Improvements that can be Implemented

COSTS OF ALL WORK - AS SEPARATE PROJECTS City of Winnipeg Archives Building, 380 William Avenue		NET CONST COST	PROJECT COST
New Roof:			-
Structure to slope away from vault, demolition & drainage		160,000	232,109
Roof membrane & accessories		190,000	275,629
Exterior enclosure & lift		150,000	217,602
Archival Vault			-
Mechanical - HVAC		246,100	357,013
Electrical - lighting and controls		55,600	80,658
Mezzanine floor infill:		143,983	208,873
- New floor structure	60,000		-
- Fire rated drywall	15,000		-
- Sprinkler entire Vault (4 Levels)	68,983		-
- Compact shelving		92,160	133,695
Structural floor upgrade on existing floor areas		168,700	244,730
- Floor structure upgrade	147,100		-
- Fire rated drywall	21,600		-
- Compact shelving		1,074,280	1,558,437
Vestibules, windows, doors and masonry infill of interior openings		90,000	130,561
Infill windows on south elevation		40,000	58,027
Room finishes (requires lighting replacement)		99,900	144,923
Thermal/moisture separation		130,000	188,589
- wall adjacent to exterior	50,000		-
- lowest vault level floor	15,000		-
- highest vault level ceiling	15,000		-
- walls adjacent to interior spaces	50,000		-
New fire stair		50,000	72,534
Window restoration		214,600	311,316
Base building electrical upgrades		56,000	81,238
Base building mechanical upgrades		395,000	573,019
Main & 2nd flr WC's, lounge, break-out and kitchenettes		80,000	116,054
Security, CCTV, Fire Alarm, Comm., Access Control		303,000	439,556
- Fire Alarm	77,000		-
- Communications	74,000		-
- CCTV	62,000		-
- Security, Access Control	90,000		-
New basement compact shelving & structural floor:		498,560	723,251
- Compact shelving	356,160		-
- New structural floor	142,400		-
Window coverings		34,900	50,629
New doorway & partition to create MPR room		25,200	36,557
Main floor AV pod, reception desk		35,000	50,774
Main floor general shelving & cabinetry		55,900	81,093
Second floor office furniture		108,000	156,674
Second floor general shelving & cabinetry		55,900	81,093
Basement		137,000	198,743
Walls, doors & finishes	55,000		-
Mechanical	27,000		-
Electrical power & lighting	55,000		-
Main Floor		259,000	375,726
Wall, doors, & finishes	100,000		-
Mechanical	27,000		-
Electrical power & lighting	132,000		-
Second Floor		259,000	375,726
Wall, doors, & finishes	100,000		-
Mechanical	27,000		-
Electrical power & lighting	132,000		-
	Totals net construction costs	5,207,783	7,554,831
	Inflation		
	Gross-up Factor	1.45	
	phasing	5%	260,389
	general requirements	8%	437,454
	fee	3%	177,169
	design & pricing	8%	486,624
	soft costs (arch, eng, disbursements)	15%	985,413
	total project costs	7,554,831	7,554,831
	factor		1.4507
	fee on equipment	5%	

4.3 Six Year Phased Capital Investment Plan based on \$3 million

SIX YEAR PRIORITIZED LIST OF IMPROVEMENTS City of Winnipeg Archives Building, 380 William Avenue	SENARIO 1					
	YEAR 2010	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	-	-	-	-	-	-
New Roof:						
Structure to slope away from vault, demolition & drainage						
Roof membrane & accessories				308,705		
Exterior enclosure & lift		230,658				
Archival Vault						
Mechanical - HVAC				399,854		
Electrical - lighting and controls				90,337		
Mezzanine floor infill:			227,672			
- New floor structure						
- Fire rated drywall						
- Sprinkler entire Vault (4 Levels)						
- Compact shelving						
Structural floor upgrade on existing floor areas			266,756			
- Floor structure upgrade						
- Fire rated drywall						
- Compact shelving						
Vestibules, windows, doors, masonry infill of interior openings			142,312			
Infill windows on south elevation			63,250			
Room finishes (requires lighting replacement)			157,966			
Thermal/moisture separation			205,561			
- wall adjacent to exterior						
- lowest vault level floor						
- highest vault level ceiling						
- walls adjacent to interior spaces						
New fire stair						
Window restoration						
Base building electrical upgrades						95,861
Base building mechanical upgrades						
Main & 2nd flr WC's, lounge, break-out & kitchenettes - 90% of total						100,000
Security, CCTV, Fire Alarm, Comm., Access Control - 20% of total						85,296
- Fire Alarm						
- Communications						
- CCTV						
- Security, Access Control						
New basement compact shelving & structural floor:						
- Compact shelving						
- New structural floor						
Window coverings						
New doorway & partition to create MPR room					42,041	
Main floor AV pod, reception desk					58,390	
Main floor general shelving & cabinetry					93,257	
Second floor office furniture						
Second floor general shelving & cabinetry						
Basement						
Walls, doors & finishes						
Mechanical						
Electrical power & lighting						
Main Floor					432,085	
Wall, doors, & finishes						
Mechanical						
Electrical power & lighting						
Second Floor						
Wall, doors, & finishes						
Mechanical						
Electrical power & lighting						
Totals	-	230,658	1,063,517	798,896	625,773	281,157
Inflation	3%	3%	3%	3%	3%	3%
Balance	500,000	769,342	205,825	(93,071)	(218,844)	(0)
Running Balance	-	230,658	1,294,175	2,093,071	2,718,844	3,000,000

4.4 Six Year Phased vs. Single Project Comparison









COMPARATIVE OF PHASED AND SINGULAR PROJECTS City of Winnipeg Archives Building, 380 William Avenue	COSTS AS SEPARATE PROJECTS	SCENARIO 1 YEAR 6 PHASED	SCENARIO 2 3 MILLION IN YEAR 1	SCENARIO 3 AS ONE PROJECT IN YEAR 1
New Roof:	-	-	-	-
Structure to slope away from vault, demolition & drainage	232,109			211,440
Roof membrane & accessories	275,629	308,705	251,085	251,085
Exterior enclosure & lift	217,602	230,658	198,225	198,225
Archival Vault	-			
Mechanical - HVAC	357,013	399,854	325,221	325,221
Electrical - lighting and controls	80,658	90,337	73,475	73,475
Mezzanine floor infill:	208,873	227,672	190,274	190,274
- New floor structure	-			-
- Fire rated drywall	-			-
- Sprinkler entire Vault (4 Levels)	-			-
- Compact shelving	133,695		121,789	121,789
Structural floor upgrade on existing floor areas	244,730	266,756		222,937
- Floor structure upgrade	-			-
- Fire rated drywall	-			-
- Compact shelving	1,558,437			1,419,661
Vestibules, windows, doors and masonry infill of interior openings	130,561	142,312	118,935	118,935
Infill windows on south elevation	58,027	63,250	52,860	52,860
Room finishes (requires lighting replacement)	144,923	157,966	132,018	132,018
Thermal/moisture separation	188,589	205,561	171,795	171,795
- wall adjacent to exterior	-			-
- lowest vault level floor	-			-
- highest vault level ceiling	-			-
- walls adjacent to interior spaces	-			-
New fire stair	72,534		66,075	66,075
Window restoration	311,316			283,594
Base building electrical upgrades	81,238	95,861	74,004	74,004
Base building mechanical upgrades	573,019		521,993	521,993
Main & 2nd flr WC's, lounge, break-out and kitchenettes	116,054	100,000	105,720	105,720
Security, CCTV, Fire Alarm, Comm., Access Control	439,556	85,296	100,836	400,415
- Fire Alarm	-			
- Communications	-			
- CCTV	-			
- Security, Access Control	-			
New basement compact shelving & structural floor:	723,251			658,847
- Compact shelving	-			-
- New structural floor	-			-
Window coverings	50,629			46,120
New doorway & partition to create MPR room	36,557	42,041	33,302	33,302
Main floor AV pod, reception desk	50,774	58,390	46,253	46,253
Main floor general shelving & cabinetry	81,093	93,257	73,872	73,872
Second floor office furniture	156,674			142,722
Second floor general shelving & cabinetry	81,093			73,872
Basement	198,743			181,046
Walls, doors & finishes	-			-
Mechanical	-			-
Electrical power & lighting	-			-
Main Floor	375,726	432,085	342,269	342,269
Wall, doors, & finishes	-			-
Mechanical	-			-
Electrical power & lighting	-			-
Second Floor	375,726			342,269
Wall, doors, & finishes	-			-
Mechanical	-			-
Electrical power & lighting	-			-
Totals	7,554,831	3,000,000	3,000,000	6,882,085
Inflation		3%		
Balance		(0)		
Running Balance		3,000,000	3,000,000	6,882,085
Gross-up Factor			1.32	1.32
net construction cost	5,207,783			5,207,783
phasing	260,389	5%	0%	-
general requirements	437,454	8%	8%	416,623
fee	177,169	3%	3%	168,732
design & pricing	486,624	8%	8%	463,451
soft costs (arch, eng, disbursements)	985,413	10%	10%	625,659
total project cost	7,554,831			6,882,248

Appendix A

Upgrade & Renovation Drawings & Specifications

(see following pages)

LEGEND:

-  NEW DOOR
-  EXISTING DOOR
-  EXISTING DOOR TO BE DEMOLISHED
-  EXISTING WALL TO BE DEMOLISHED
-  EXISTING WALL
-  NEW WALL
-  EXISTING MASONRY WALL
-  NEW MASONRY INFILL

WALL SCHEDULE:

- W1** 5/8" GWB TYPE 'X'
2 X 2 ST. STUD FRAMING 18" O.C.
2" POLYURETHANE SPRAYFOAM
EXISTING PLASTER FINISH
- W2** 5/8" GWB TYPE 'X' - BOTH SIDES
2 X 6 ST. STUD FRAMING 18" O.C.
6" BATT INSULATION
6 MIL. POLY V.B.
- W3** 5/8" GWB TYPE 'X' - BOTH SIDES
2 X 4 ST. STUD FRAMING 18" O.C.
- W4** 5/8" GWB TYPE 'X' - BOTH SIDES
2 X 4 ST. STUD FRAMING 18" O.C.
4" BATT INSULATION
- W5** 5/8" GWB TYPE 'X' - BOTH SIDES
2 X 4 ST. STUD FRAMING 18" O.C.
4" BATT INSULATION
- W6** 5/8" GWB TYPE 'X' - MECHANICALLY FASTENED
SELF ADHESIVE BITUMEN MEMBRANE (BLUESKIN)
EXISTING PLASTER FINISH
- W7** 2 LAYERS 5/8" GWB TYPE 'X'
EXISTING WALL ASSEMBLY
- W8** 5/8" GWB TYPE 'X'
2 X 6 ST. STUD FRAMING 18" O.C.
6" CLOSED CELL POLYURETHANE SPRAY
FOAM INSULATION
EXISTING PLASTER FINISH

KEYNOTES

1. DEMOLISH STAIR (INFILL FLOOR ASSEMBLY AS REQUIRED)
2. PROVIDE LINTEL FOR NEW OPENING IN MASONRY
3. DEMOLISH VAULT
4. NEW STEEL STAIR, HANDRAIL & GAURDS
5. DEMOLISH WOOD FRAME GWB PARTITION (±12'-0" HIGH)
6. EXISTING STAIR
7. INFILL EXISTING DOOR OPENING WITH MASONRY
8. NEW WOOD AND GLASS PARTITION (SEE BLDG. SECTION DRAWING FOR INTERIOR ELEVATION)
9. NEW 9' HIGH WOOD AND GLASS PARTITION - CEILING TO BE WOOD FRAME W/ PLYWOOD BOTH SIDES - WAINSCOTTING TO 36", GLASS ABOVE
10. ±8" CAVITY TO BE HEATED AND COOLED SEPARATLY FROM ARCHIVAL VAULT - SEE MECH. SPEC.

GENERAL NOTES:

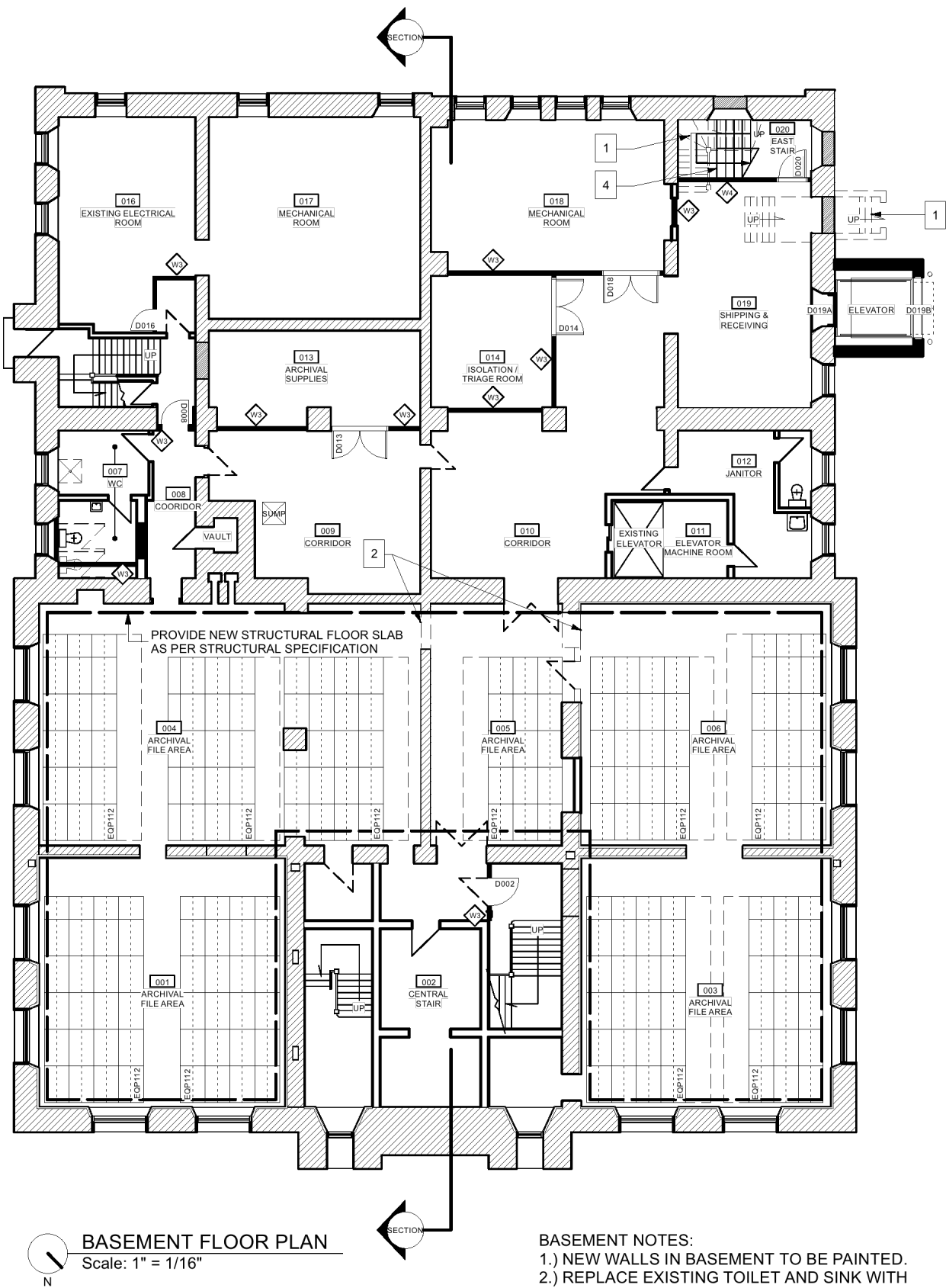
- 1.) FURNISHINGS AND EQUIPMENT SHOWN WITH A DASHED LINE AR NOT INCLUDED IN THE COSTING EXERCISE.
- 2.) REMOVE PAINT FINISH, STAIN AND CLEAR COAT CONTINOUS WOOD BASE BOARDS, CHAIR RAIL & DOOR FRAMES IN ROOMS 103, 105, 106, 107, 108, 111, 201, 202, 203, 204, 205, 206, 207, 209, 210

GENERAL DEMOLITION NOTES:

- 1.) REMOVE RUBBER BASE FROM PERIMETER WALLS IN ROOMS 103, 105, 106
- 2.) DEMOLISH ALL FLOORING FINISHES THROUGHOUT BUILDING. (BASEMENT NIC)
- 3.) ALL DOORS SLATED FOR DEMOLITION TO BE REMOVED AND STORED ON SITE WITH TAGS INDICATING THEIR ORIGINAL LOCATION.

DOOR SCHEDULE:

DOOR NUMBERS	EXISTING	WOOD	RE-FINISH	GLAZED	HLW. METAL	FIRE RATED	PANIC HDW.	LOCKING	CARD ACCESS	INSULATED
D002					X	X	X	X		
D008					X	X	X	X		
D013					X	X		X		
D014					X			X		
D016					X	X		X		
D018					X	X		X		
D019 A & B					X			X	X	X
D020					X	X	X	X		
D021					X		X	X		X
D103	X	X	X	X				X	X	
D104 A & B		X		X				X	X	
D106		X		X				X		
D107		X		X						
D108A	X	X	X							
D108B					X	X		X		
D109		X								
D109A					X	X	X	X	X	X
D110	X	X	X							
D112					X	X	X	X	X	X
D112 A & B					X	X	X	X		X
D114 A & B					X			X		
D115					X					
D116 & D117					X			X		
D118					X	X	X	X		
D201	X	X	X	X						
D203	X	X	X	X						
D205	X	X	X	X						
D207	X	X	X	X						
D208		X								
D208A					X	X	X	X	X	X
D209	X	X	X							
D211		X		X		X		X	X	X
D211 A & B					X	X	X	X		X
D212					X	X		X		
D213					X					
D214					X			X		
D215					X			X		
D216					X		X	X		X

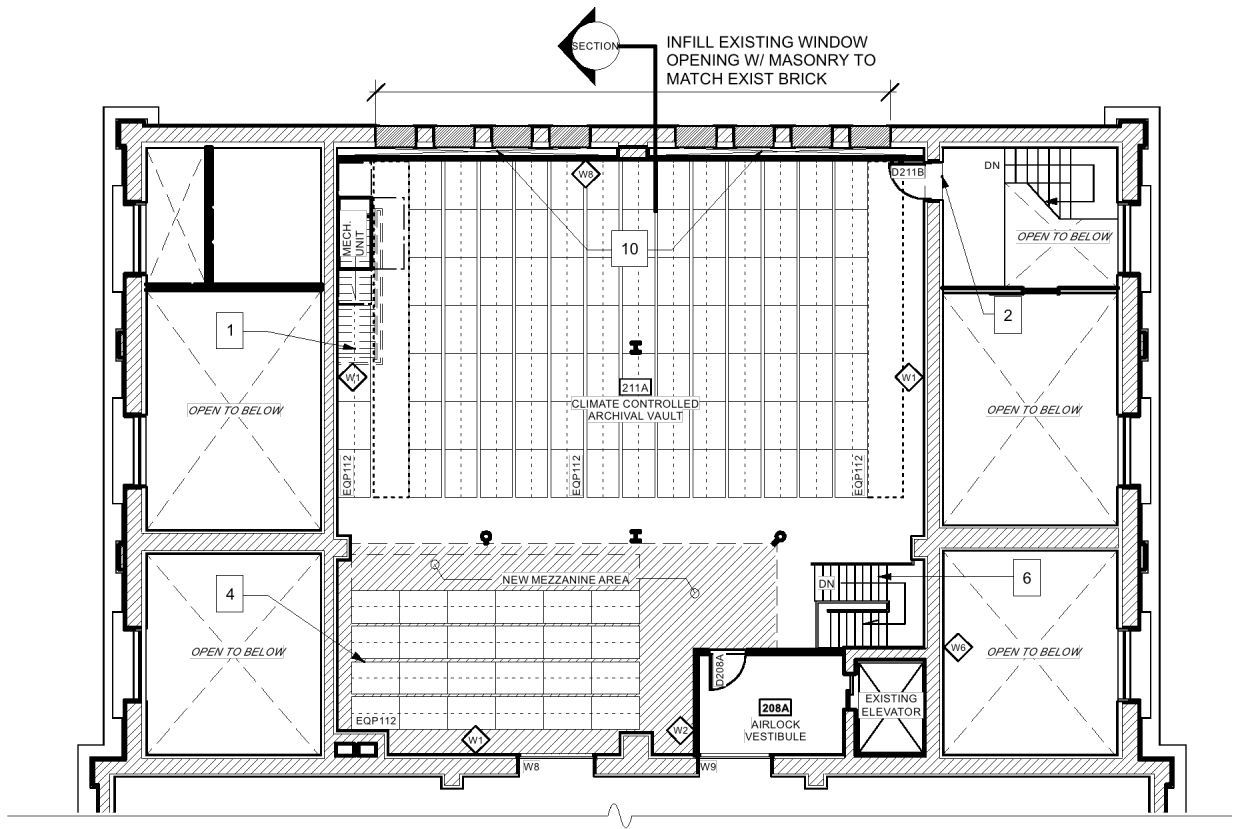


BASEMENT FLOOR PLAN

Scale: 1" = 1/16"

BASEMENT NOTES:

- 1.) NEW WALLS IN BASEMENT TO BE PAINTED.
- 2.) REPLACE EXISTING TOILET AND SINK WITH NEW FIXTURES AS SHOWN ROOM WC 007 - PROVIDE SHEET VINYL FLOOR FINISH W/ COVED BASE AND A.C.T CEILING.



SECOND FLOOR MEZZANINE

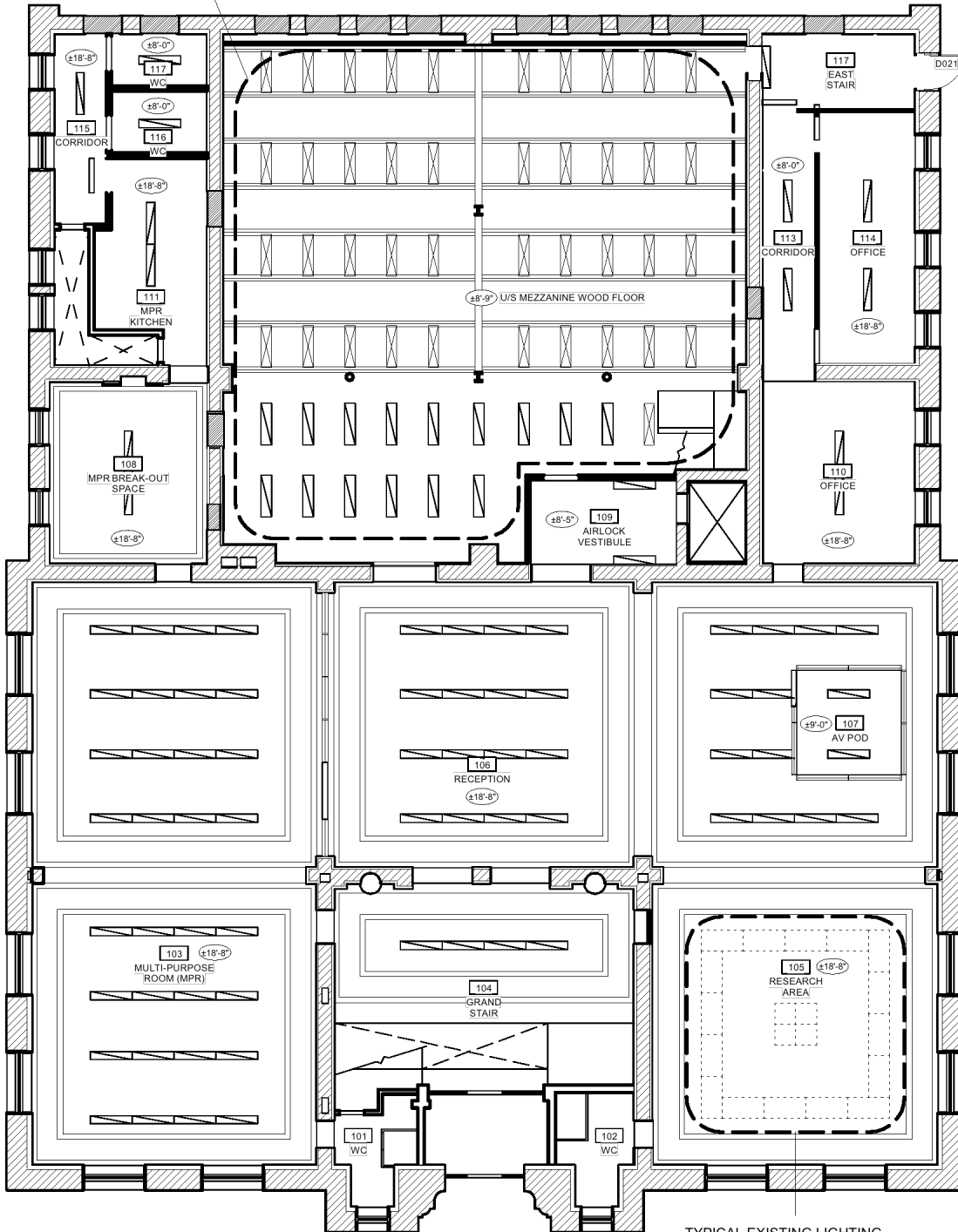
Scale: 1" = 1/16"

KEYNOTES

1. DEMOLISH STAIR (INFILL FLOOR ASSEMBLY AS REQUIRED)
2. PROVIDE LINTEL FOR NEW OPENING IN MASONRY
3. DEMOLISH VAULT
4. NEW STEEL STAIR, HANDRAIL & GAURDS
5. DEMOLISH WOOD FRAME GWB PARTITION (±12'-0" HIGH)
6. EXISTING STAIR
7. INFILL EXISTING DOOR OPENING WITH MASONRY
8. NEW WOOD AND GLASS PARTITION (SEE BLDG. SECTION DRAWING FOR INTERIOR ELEVATION)
9. NEW 9' HIGH WOOD AND GLASS PARTITION - CEILING TO BE WOOD FRAME W/ PLYWOOD BOTH SIDES - WAINSCOTTING TO 36", GLASS ABOVE
10. ±8" CAVITY TO BE HEATED AND COOLED SEPARATLY FROM ARCHIVAL VAULT - SEE MECH. SPEC.

ROOM NUMBERS	WALL		FLOOR			BASE			CEILING		
	NIC	PAINT	NIC	LINOLEUM	CARPET	NIC	RUBBER	COVE	WOOD	NIC	PAINT
201,03,04,05,06		X			X			X			X
202		X	X			X					X
207		X			X			X			X
208 & 208A				X				X			X
209		X			X			X			X
210		X		X			X				X
211 & 211A		X		X				X			X
212				X							X
213		X	X			X					X
214 & 215		X	X				X				X
216		X		X			X				X

PROVIDE A SEPERATE PRICE FOR METAL FURRING CHANNELS @ 400 O.C. W/ 5/8" TYPE 'X' GWB TO U/S OF MEZZANINE STRUCTURE ON LEVELS MAIN AND SECOND TYP. PROVIDE ADDITIONAL ALLOWANCE FOR METAL FURRING AND GWB APPLICATION TO COLUMNS AND BEAMS.



MAIN FLOOR REFLECTED CEILING PLAN
 Scale: 1" = 1/16"
 N

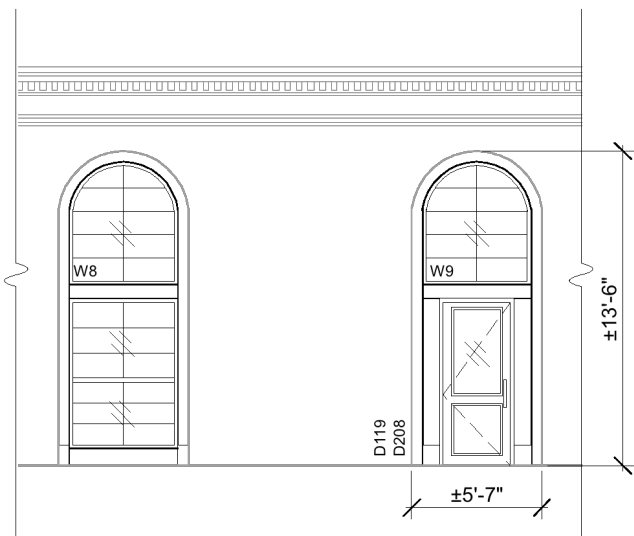
LEGEND:

-  EXISTING LIGHT FIXTURE TO BE REPLACED
-  NEW FLOURESCENT SUSPENDED LIGHT FIXTURE
-  EXISTING LIGHT FIXTURE TO BE DEMOLISHED

TYPICAL EXISTING LIGHTING LAYOUT IN ROOMS 103, 105 & 106 TO BE DEMOLISHED - PATCH AND REPAIR PLASTER CEILING AS REQUIRED. NEW LIGHTING LAYOUT TO MATCH RM106 RECEPTION

MILLWORK & EQUIPMENT SCHEDULE:

TAG NUMBERS	LINEAR (FT)	HEIGHT (FT)	UPPER CABINETS	LOWER CABINETS	PLAMINATE	WOOD FINISH	OPEN SHELVING	STEEL CONSTRUCTION	REMARKS
MWK101	36			X		X			RECEPTION DESK W/ TRANSACTION COUNTER
MWK102	10.5	3		X		X			
MWK103	67.5	3		X			X		INTEGRATE W/ CAST IRON RADIATORS
MWK104	22	3		X		X			
MWK105	12.5	8	X	X	X				INCLUDE SINK/FAUCET IN PRICE
MWK201	144								OFFICE CUBICLES (INCLUDE CHAIR IN PRICE)
MWK202	90	8					X	X	30" DEEP
MWK203	177	8					X	X	18" DEEP
MWK204	15	3		X				X	26" DEEP
MWK205	17	8	X	X				X	3' DEEP COUNTER
MWK206	10	8	X	X					INCLUDE SINK/FAUCET IN PRICE
MWK207	19.5	8	X	X				X	3' DEEP COUNTER (INCLUDE DOUBLE SINK/FAUCET IN PRICE)
EQP112	1596	7					X		48" X 16" MOBILE SHELVING (UNITS DIVIDE VERTICALLY INTO 5)
EQP211	1576	7					X		48" X 16" MOBILE SHELVING (UNITS DIVIDE VERTICALLY INTO 5)



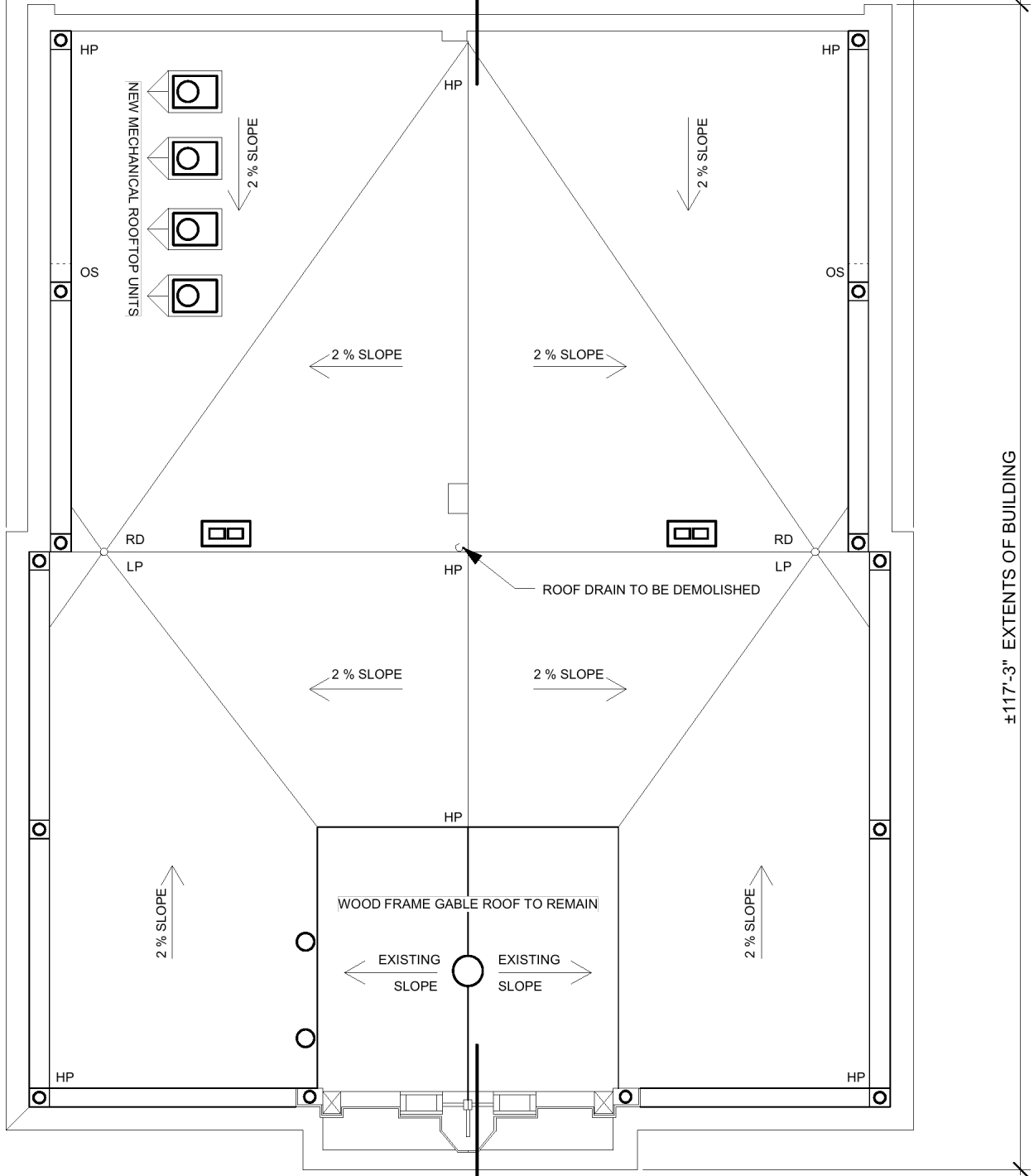
INTERIOR ELEVATION
1':1/8"



INTERIOR ELEVATION
1':1/8"

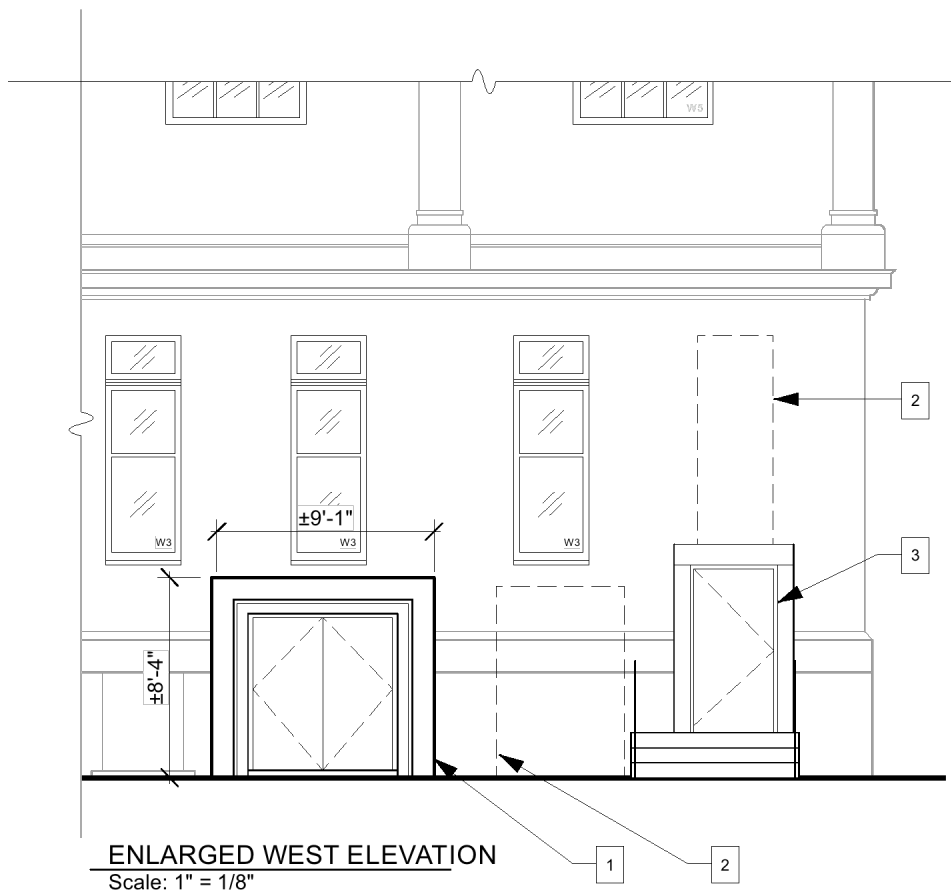
±91'-4" EXTENTS OF BUILDING

PROVIDE NEW FLAT STEEL FRAME ROOF
STRUCTURE W/ LIGHT COLOURED 2 PLY
SBS ROOF MEMBRANE SYSTEM ON
SLOPED EPS INSULATION



ROOF PLAN
1":1/16"
N

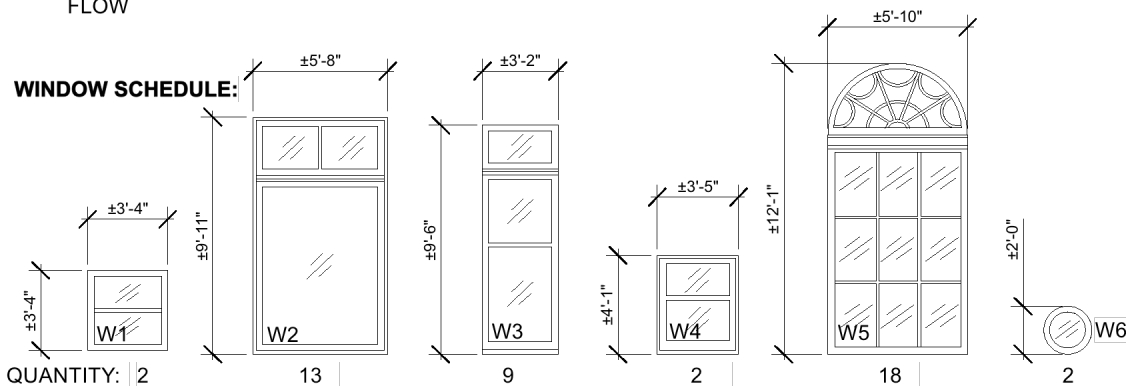
LEGEND:
HP - HIGH POINT
LP - LOW POINT
OS - OVERFLOW SCUPPER
RD - ROOF DRAIN



ELEVATION & SECTION KEYNOTES:

1. PROVIDE NEW MASONRY WALL CONSTRUCTION FOR LOADING ELEVATOR VESTIBULE - MATCH EXTERIOR FINISH TO EXISTING
2. INFILL OPENING W/ MASONRY TO MATCH EXISTING
3. PROVIDE MASONRY ORNAMENTAL DETAILING AT NEW OPENING FOR DOOR
4. REMOVE PAINT AND REFURBISH WOOD W/ STAIN & CLEAR COAT FINISH
5. DEMOLISH STAIR
6. INFILL OPENINGS W/ MASONRY
7. REMOVE EXISTING FLOOR FINISH AND SUBFLOOR IN CLIMATE CONTROL VAULT. INFILL JOIST CAVITY WITH SPRAY APPLIED CLOSED CELL POLY URETHANE FOAM. APPLY NEW PLYWOOD SUBFLOOR AND FINISH FLOOR AS PER ROOM FINISH SCHEDULE.
8. SELF ADHERING BITUMEN MEMBRANE OVER EXISTING PLASTER FINISH CEILING. MECHANICALLY FASTEN 5/8" TYPE 'X' GWB TO CEILING STRUCTURE OVER MEMBRANE
9. NEW ROOF
10. NEW MEZZANINE STRUCTURE
11. DEMOLISH EXISTING CEILING FINISH
12. APPLY 2 LAYERS 5/8" TYPE 'X' GWB
13. OPEN CAVITY PROVIDING THERMAL BUFFER FOR CLIMATE CONTROLLED ARCHIVAL VAULT - SEE MECHANICAL SPEC. - DEMOLISH EXISTING FLOOR ASSEMBLY AS REQUIRED TO ACCOMODATE AIR FLOW

WINDOW SCHEDULE:



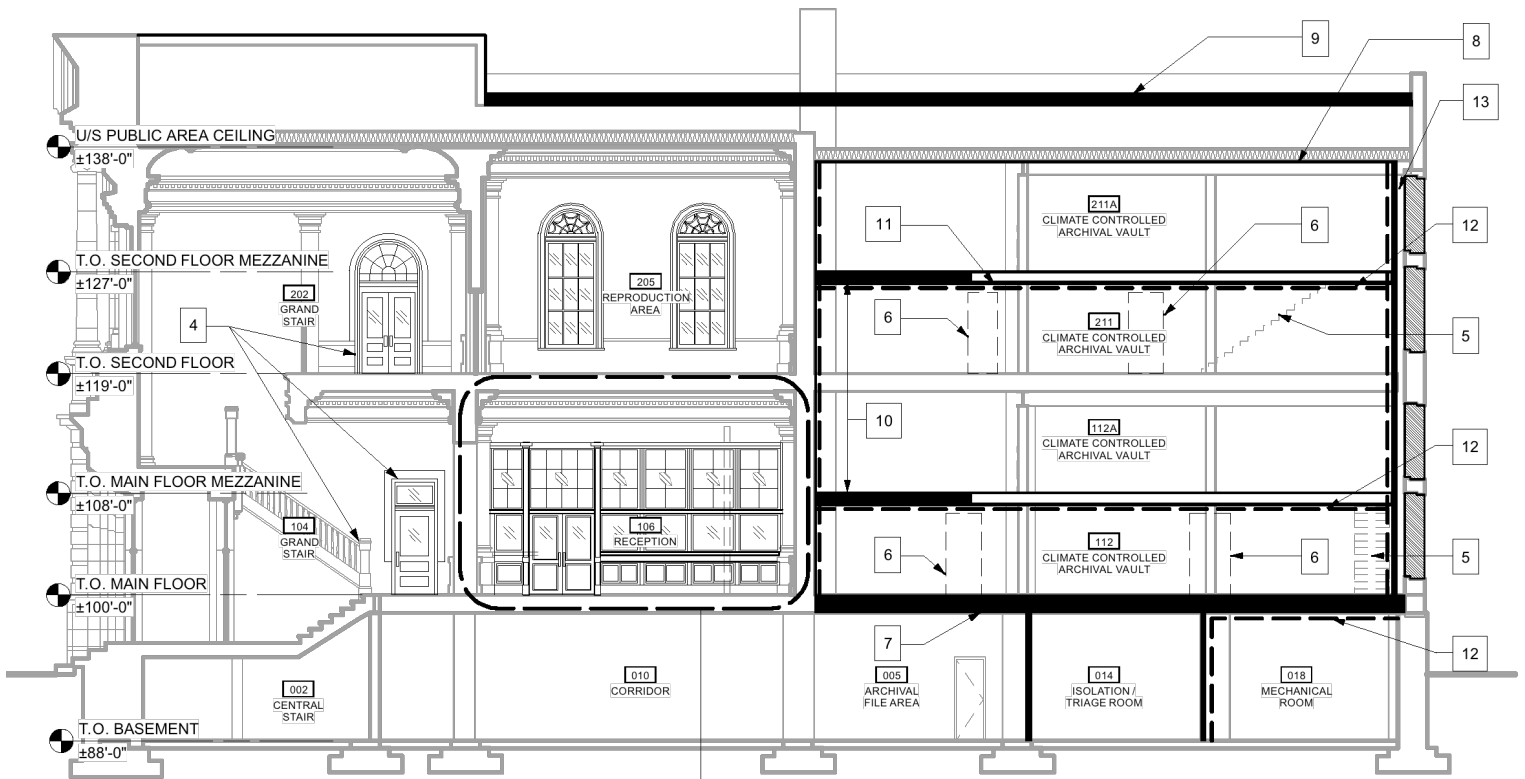
GENERAL WINDOW NOTES:

-WINDOWS TAGGED WITH NUMBERS AND SHOWN ON THE DRAWINGS AS SUCH WILL HAVE WOOD WINDOW FRAMES REMOVED, REFURBISHED & RE-INSTALLED WITH NEW DUAL PANE, ARGON FILLED, LOW E COATED GLAZING UNITS. INCLUDE WINDOW ROLLER BLINDS IN PRICING.
-SEE INTERIOR ELEVATION FOR WINDOWS W8 & W9.



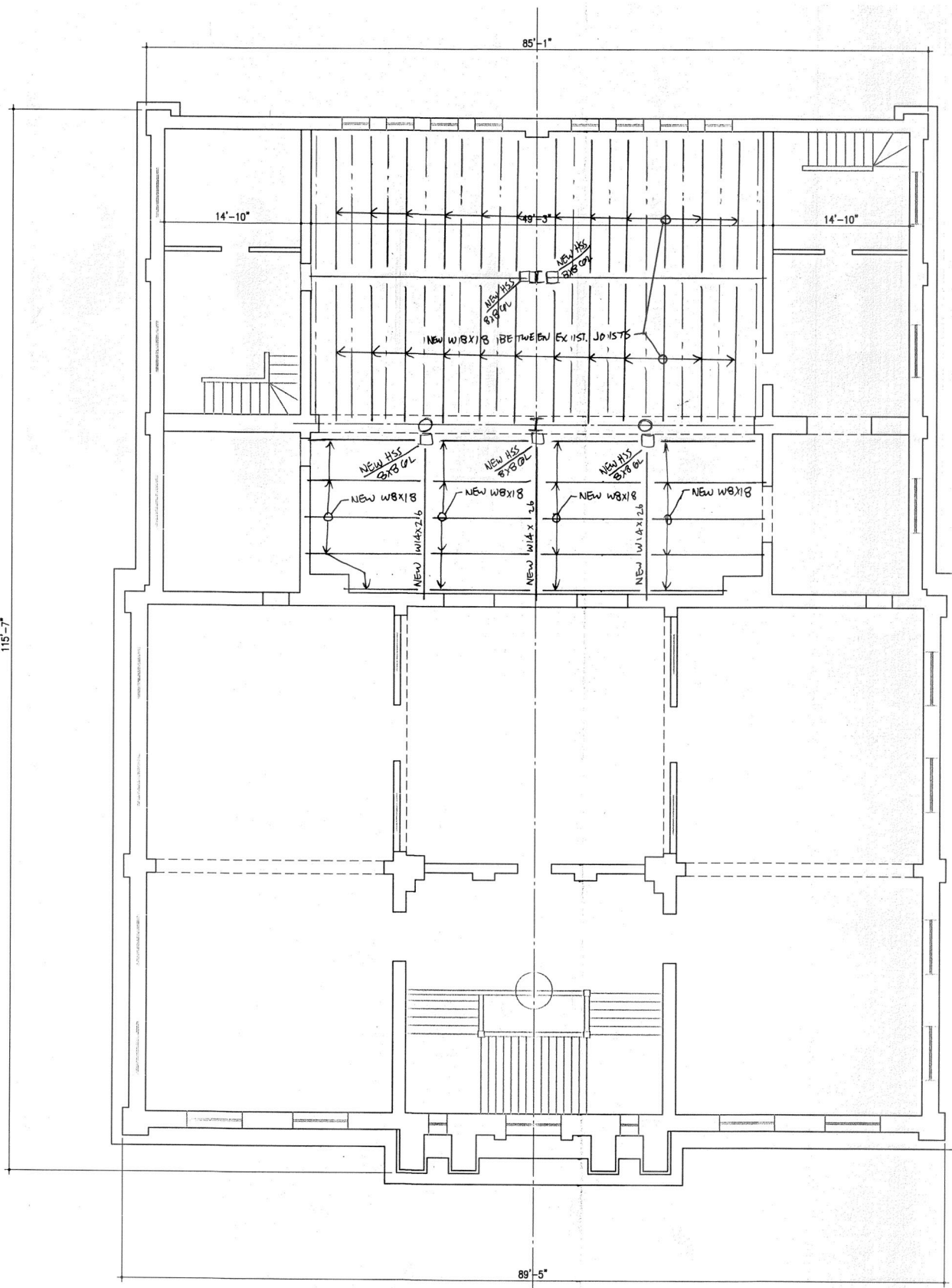
EAST ELEVATION
Scale: 1" = 1/16"

*NOTE:
REFURBISH WINDOWS AS PER WINDOW SCHEDULE

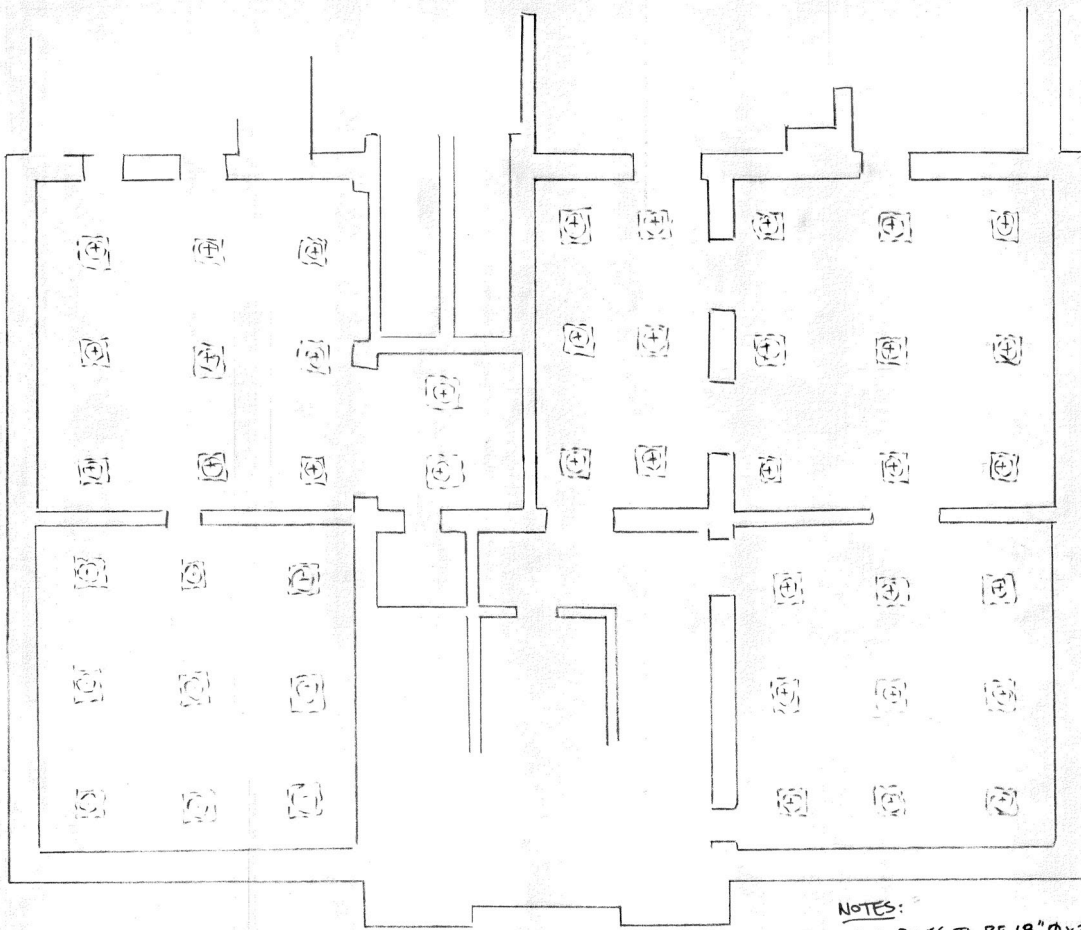


BUILDING SECTION
Scale: 1" = 1/16"

SEE INTERIOR ELEVATION FOR GREATER DETAIL OF
NEW WOOD WALL & GLAZING



SECOND MEZZANINE PLAN

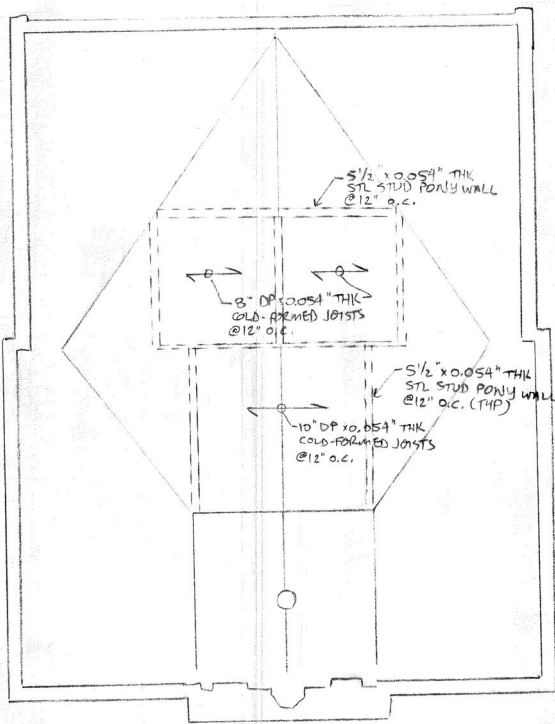


NOTES:

- ALL PILES TO BE 18" ϕ x 35'-0" LONG
- ALL NEW SLAB TO BE 8" THICK
- R/W 15 M @ 16" o.c. E.W. TOP & BOT.
- 6" VOID FORM UNDER ALL SLAB AREAS

BASEMENT FLOOR FRAMING PLAN

DESIGN LIVE LOAD = 200 PSF



NOTES FOR NEW STEEL BEAMS BEARING ON EXISTING BRICK WALLS:

1. BREAK OUT EXISTING BRICK
2. BEAR NEW BEAM INTO EXIST. BRICK WALL ON 12" x 12" x 3/4" THK BEARING PLATE ON 2" THICK DRY PACK GROUT c/w 2-1/2" ϕ ANCHORS
3. REBUILD BRICK AROUND BEAM.

ROOF PLAN - SUPPORT FRAMING FOR REARRANGEMENT OF SLOPES

FOUNDATIONS

1. ALL FRICTION PILES ARE DESIGNED ON AN ALLOWABLE SKIN FRICTION OF 250 P.S.F.. EFFECTIVE LENGTH OF FRICTION PILES IS TOTAL LENGTH AS SHOWN ON PLAN MINUS 5'-0" FOR INTERIOR PILES BELOW BASEMENT.
2. FRICTION PILE REINFORCING TO BE 6000 MM 20'-0" LONG UNLESS NOTED IN PLANS; 10M RINGS AT 48 IN. ON-CENTRE AND 3-10M RINGS AT 6' ON-CENTRE AT TOP. PILE REINFORCING TO BE, 6-10M VERTICALS.

CAST-IN-PLACE CONCRETE

I CONCRETE

1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA-A23.1-09 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CAN/CSA-A23.2-09 "METHOD OF TEST FOR CONCRETE".
2. CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

PILES: 35 MPA MIN. AT 56 DAYS
CLASS OF EXPOSURE: S-1
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
CEMENT TYPE: HS MS
AGGREGATE: MAX. 20 MM

GRADE BEAMS: 25 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: F-2
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

INTERIOR STRUCTURAL SLABS: 25 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: N
ENTRAINED AIR/CATEGORY: NONE (LESS THAN 3%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

TOPPING SLABS ON METAL DECK: 25 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: N
ENTRAINED AIR/CATEGORY: NONE (LESS THAN 3%)
AGGREGATE MAX. 20 MM 14 MM
CURING TYPE: TYPE 1 - BASIC

UNLESS INDICATED OTHERWISE THE GENERAL CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE GENERAL CONTRACTOR CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

3. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260-01 "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINING ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666/C666M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17MM OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

II REINFORCING STEEL

1. ALL REINFORCING STEEL TO BE CAN/CSA-G30.18M GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA - MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
2. WELDED STEEL WIRE MESH SHALL BE TO ASTM A185-02, 400 MPA YIELD, FLAT SHEETS ONLY.
3. REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-04 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS".
4. IN WALLS AND GRADE BEAMS, BEND ALL TOP AND INTERMEDIATE HORIZONTAL STEEL 600 MM 2'-0" AROUND CORNERS, OR USE EXTRA L BARS 1200 MM 4'-0" LONG. ALL OPENINGS IN WALLS TO HAVE 2-15M EACH SIDE AND 2-25M OVER, EXCEPT AS NOTED.
5. TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, BOTTOM STEEL TO BE BUTTED AT SUPPORT.
6. ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
7. ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLATWORK TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.
8. FOR ALL STRUCTURAL SLABS A MINIMUM OF 50% OF THE BOTTOM STEEL SHALL BE CONTINUED A MINIMUM DISTANCE OF 150 MM 6 IN. INTO ALL SUPPORTING WALLS AND BEAMS. IF KEYS ARE USED AT JOINTS BETWEEN SLABS AND WALLS OR BEAMS, BOTTOM DOWELS EQUAL TO BOTTOM REINFORCEMENT OR 10M AT 300 MM 12 IN. O/C SHALL BE PROVIDED WHICHEVER IS GREATER.
9. ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 MM 16 IN. O/C EACH WAY, UNLESS NOTED.

III FORMWORK

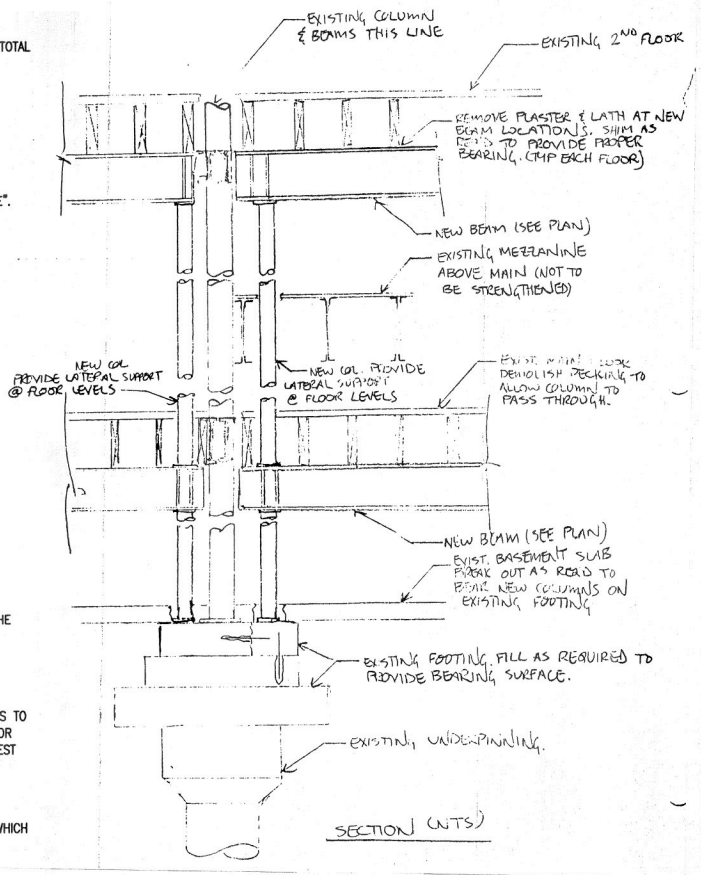
1. SHEARMAT OR APPROVED CARDBOARD VOIDFORM WITH A MIN. DEPTH OF 6 IN. SHALL BE USED AS THE BOTTOM FORM FOR STRUCTURAL SLABS AT GRADE, GRADE BEAMS, AND WALLS IN CONTACT WITH SOIL. SELECT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE VOIDFORM.
3. UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 MM 1/2 IN. ASPHALT IMPREGNATED FIBREBOARD.
4. ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 MM 1 1/2 IN. DEEP.
5. ALL STRUCTURAL SLABS FRAMING INTO BASEMENT WALLS ARE TO HAVE A MINIMUM KEY OF 40 MM 1 1/2 IN.
6. ALL CONCRETE BEAMS FRAMING INTO CONCRETE WALLS ARE TO BE SUPPORTED BY A CHASE OF MINIMUM 100 MM 4 IN. DEPTH AND THE HEIGHT AND WIDTH OF THE BEAM.
7. PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL AND OVER TOP OF VOIDFORM.
8. PROVIDE 150 MM 6 IN. WIDE, RIBBED, PVC WATERSTOPS IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ALL EXTERIOR WALLS BELOW GRADE AND PIT WALLS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL TO CONFORM TO CSA-G40.21, "STRUCTURAL QUALITY STEELS" AND CSA-G40.20 "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL".
2. ALL ROLLED OR STEEL STRUCTURAL SECTIONS SHALL BE G40.21-50W. ALL HOLLOW STRUCTURAL SECTIONS TO BE G40.21-50W CLASS C. ALL ANGLES, CHANNELS AND PLATES SHALL BE G40.21-44W.
3. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH CAN/CSA S16.1-01, "STEEL STRUCTURES FOR BUILDINGS".
4. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF CSA W59, "WELDED STEEL CONSTRUCTION". FABRICATORS SHALL BE PROPERLY CERTIFIED IN ACCORDANCE WITH CSA W47.1, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES".
5. ALL BOLTED CONNECTIONS TO USE A325 HIGH STRENGTH BOLTS. MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.
6. ALL STRUCTURAL STEEL IS TO RECEIVE ONE COAT OF CISC/CPMA 1-73A QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. STEEL RECEIVING FINISH PAINTING TO HAVE ONE COAT OF CISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
7. NO HOLES PERMITTED IN TOP FLANGE OF BEAMS AT COLUMNS WHERE BEAMS ARE CONTINUOUS OVER COLUMNS.
8. ALL BEAMS CONTINUOUS OVER COLUMNS ARE TO HAVE WEB STIFFENERS THE SAME SIZE AND ORIENTATION AS THE COLUMN BELOW, UNLESS OTHERWISE NOTED.
9. ANCHOR BOLTS TO BE GRADE ASTM A307 PROVIDED BY STEEL SUPPLIER AND SET BY THE GENERAL CONTRACTOR.
10. THE STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND ERECTING ALL TEMPORARY GUYING AND BRACING OF THE STEEL FRAMING TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL ALL STEEL DECKING IS ERECTED, WELDED IN PLACE AND ALL MASONRY/CONCRETE WALLS CONSTRUCTED.

METAL DECK

1. FLOOR DECK SHALL BE 1 1/2 IN. DEEP PROFILE, 0.030 IN., COMPOSITE, WITH RIB SPACING OF 6 IN.
2. DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM GALVANIZED ZINC COATING TO Z275.
3. DECK SHALL BE ARC SPOT WELDED TO BEARING SUPPORTS AT 300 MM 12 IN. O/C. WELDS SHALL BE 20 MM 3/4 IN. DIAMETER.
4. SIDE LAPS SHALL BE MECHANICALLY FASTENED AT 600 MM 24 IN. ON-CENTRE.



SECTION (WTS)

MECHANICAL OUTLINE SPECIFICATION

City of Winnipeg Archives 380 William

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

1. Basis of design:
 - 1.1. Schematic drawings by Cibinel Architects.
 - 1.2. Vault indoor environmental design requirements:
 - 1.2.1. Temperature: 16°C +/- 2°C (61°F +/- 2°F).
 - 1.2.2. Relative humidity: 40% RH +/- 3%.
 - 1.2.3. Filtration: 90 – 95% Dust Spot Rating.
2. General
 - 2.1. Unless otherwise noted, the terms “install” or “provide” shall include the complete supply and installation of the items noted including all equipment, materials and commissioning necessary for a fully functional system.
 - 2.2. Refer to architectural drawings for room layouts, general areas, and quantities for take-offs.
 - 2.3. Itemize pricing according to each major system or item of equipment described.
 - 2.4. Motors larger than 1 hp shall be based on 208 V 3 phase power. Smaller motors to be 120/240 single phase.
 - 2.5. Provide all new fire stopping around piping between all fire separations in floors and through walls as required by architectural plans. Fire-damper all duct penetrations through fire separations c/w access panels. Specifically, fire separations occur at all mechanical rooms, and the floor/ceiling separation between the basement and the vault. Refer to the architectural plans for a complete description.
3. Service Connections
 - 3.1. Install a new 6” water line from the city main into the mechanical room for the wet sprinkler system. Estimate 50’ of trenching required. Include all trenching, backfill, thrust block, and cathodic protection. Terminate with 6” flanged connection within the mechanical room for connection to the sprinkler system.
4. Fire Protection
 - 4.1. New fire protection system designed to NFPA 13. This shall be installed to cover the vault areas only. The remainder of the building will not be upgraded to a sprinkler system.
 - 4.2. Design for one wet sprinkler zone for each of the 4 vault floors. Zone valves are to be exposed and located within the vault space so that they are visible and easily accessible. Allow for dense coverage of shelving units.
 - 4.3. Install window sprinklers to cover the large windows separating the vault from the main area (see architectural).
 - 4.4. The main sprinkler entrance and valve tree shall be located in the basement mechanical room. Connect to the new 6” sprinkler service.

- 4.5. All piping to be Schedule 40.
- 4.6. Generally all piping is exposed with upright sprinkler heads. Any pendant heads if required shall be installed with protective cages.
- 4.7. Include a 4" diameter fire-department connection to City of Winnipeg standards.
- 4.8. Include portable fire extinguishers and surface-mount brackets.
5. Plumbing
 - 5.1. Pipe materials:
 - 5.1.1. All new sanitary waste and vent piping in the vault area shall be PVC DWV with a flame spread rating of 0 and a smoke developed classification not exceeding 35. IPEX System XFR or equal.
 - 5.1.2. All new domestic water piping under 100mm (4") shall be copper Type L.
 - 5.2. Remove the existing 8" cast-iron rainwater leader in the vault area, and cap it with a cleanout in the basement at the base of the stack.
 - 5.3. Install two new roof drains where indicated on the architectural Roof Plan. Roof drains to be conventional drains, cast-iron body, cast-iron grate.
 - 5.4. Install two new 6" rainwater leaders from the new roof drains. Piping material to be PVC DWV (see above material spec). Connect to the new roof drains and drop down to the basement ceiling level. At the basement ceiling run horizontally over to a new common 8" PVC drain riser from basement ceiling level down to the former RWL connection to the storm drain at the floor, c/w expansion joint at the base of the stack.
 - 5.5. Install a condensate drain riser in the southeast corner of the vault. The riser shall run from the basement level to the top level of the vault. In the basement, drain the riser to the nearest sump pit or floor drain.
 - 5.6. Install a condensate drain pipe from the HRV located in the basement mechanical room. Drain to the nearest sump pit or floor drain.
6. Heating
 - 6.1. Remove all the existing perimeter hydronic cabinet radiators along the north wall of the vault, all levels. Remove the hydronic heating piping serving these units and cap in the basement.
 - 6.2. Install a new 12" x 12" duct riser from the existing air handler supply duct. The riser shall run up in the southeast corner of the buffer space between the vault and the exterior wall. Branch off with open-ended 6" ducts and balance dampers to each of the 4 levels of the vault.
7. Vault Space Conditioning
 - 7.1. Supply and install a precision cooling and conditioning system for the vault area. This will consist of four floor-mounted precision cooling units, one for each level of the vault. The units will be located in the southeast corner of the vault, one on each level. The ventilation duct riser, refrigeration piping and the condensate drainage riser shall be located in a service chase or surface-mounted against the north wall.
 - 7.1.1. Precision Cooling units shall meet the following performance requirements:
 - Indoor temperature control: 61°F +/- 2°F (16°C +/- 2°C).
 - Relative humidity control: 30 – 50% RH, +/- 3%.

- Filtration: MERV 8 filters.

7.1.2. Units shall be based on:

- DX cooling coil, 54 MBH total cooling capacity at design conditions, c/w hot-gas bypass and 12 kW electric reheat (SCR control). R407C refrigerant.
- 2200 cfm, 1.5 hp motor
- 11 lb/hr built-in humidifier.
- Remote condensing unit to be roof-mounted unit, propeller fan, vertical air discharge, capable of low-ambient (-32°F operation).
- Acceptable manufacturers: Liebert Challenger BU067A; Canatal Series 9.
- Stand-alone controls mounted to the front face of each unit. Controls shall have remote connection capability to the building DDC system.

7.2. Air distribution from the precision cooling units shall be by main supply duct running at ceiling level from the top of the cooling unit. Hard-ducted transitions c/w balance dampers to fabric duct socks running along the joists to distribute evenly throughout the vault area. Duct socks shall be semi-circular profile, fully perforated.

7.3. Remote condensing units (4 each) shall be located on the rooftop, c/w sleepers (by G.C). Refrigeration liquid, suction, and hot-gas bypass piping as well as electrical supply shall drop into the attic space through a single pitch-pocket located centrally in relation to the four condensing units. Run the refrigeration piping in the attic to reach the southwest corner of the vault, then drop down to serve each of the four indoor units located on each of the four vault levels.

7.4. ERV-1: Pre-conditioning ventilation air unit to be located in the basement mechanical room (southwest corner of the building). Fresh-air intake on the south face of the building and exhaust air on the west side, both above grade level c/w heavy-duty louvers. Thermally insulate the fresh-air duct to the ERV unit. Exhaust duct to be thermally insulated for minimum of 10' inside of the exterior wall. Duct the fresh-air supply (thermally insulated) up a duct riser and branch to the indoor cooling units at each floor of the vault. Branch to the units c/w manual balance dampers. Discharge the fresh air near the return-air intakes of the indoor cooling units.

7.4.1. ERV-1 shall be Venmar ERV1500i indoor energy-recovery ventilator, 1500 cfm, with enthalpy wheel, 20 kW defrost pre-heater, 2-speed fan control, dirty filter contacts, wheel rotation sensor, insulated outside and exhaust air dampers, supply filter section.

8. Separate Prices

8.1. Provide itemized separate prices for the systems and equipment described below. Generally, this is work which will be done in the main part of the building in the non-vault areas.

8.2. Wet sprinkler system: Add another wet sprinkler zone to the building to serve all remaining areas of the building. The sprinkler system shall comply with NFPA 13. The sprinkler distribution serving the top floor will run in the heated attic space with pendant heads in the existing ceiling. For lower floors generally the sprinkler piping will be exposed and run below existing ceilings with upright heads. Include full sprinkler coverage of the heated attic area above the ceiling of the top floor.

8.3. Boiler replacement:

- 8.3.1. Remove the six cast-iron sectional boilers and replace them with three new high-efficiency boilers and pumps.
- 8.3.2. New boilers shall be condensing boilers, modulating input of 800 MBH input each (natural gas), with firing down to 20% and rated input with turndown ratio of 5:1. Boiler shall have stainless-steel combustion chamber and SS burner. Standard of acceptance: Camus Dynamax 0801.
- 8.3.3. Pumps shall be inline vertical circulator pumps, B & G Model 90 or equal. Include the following pumps (assume all pumps are 1 hp or less):
 - P-1 & 2: boiler primary loop.
 - P-6: AHU-1 coil.
 - P-4 & 9: East heating zone
 - P-3 & 5: West heating zone
 - P-8: Chilled water supply
- 8.4. Replace the heating and cooling coils on the existing air handling unit. Estimate the coil size to be 36" x 24" face area.
- 8.5. Remove the existing chiller. Replace with a new chiller, nominal 50 ton, water-cooled packaged scroll compressor chiller, R410A refrigerant, 575 V 3 phase power supply.

- End of Document -

Ref: 30-059E

July 13, 2010

Re: Outline Project Specification – 380 William Ave, City of Winnipeg Archives

Following is our electrical outline specification for the above project.

Electrical System Provisions:

- New 600A-347/600V-3ph-4w underground service to replace existing service. New pad mounted CSTE c/w metering within 3m of Manitoba Hydro service transformers. Reconnect existing 400A service conductors at CSTE. New 200A-347/600V sub-service fed from CSTE to be installed in the basement electrical room. New service is to feed all new mechanical loads.
- All mechanical equipment (including gas air handlers, condensing units, and energy recovery ventilator) to be wired & connected.
- Existing telephone service to the building is to remain. Provide new wiring and jacking to all new telephone outlets. New cabling to be Cat 5e for use of VOIP phones where required.
- All owner's equipment (including kitchen equipment) to be wired & connected.
- A new addressable single stage fire alarm system c/w remote annunciator at the building main entrance, pull stations at all exits, audible/visual devices throughout public areas and mechanical spaces, smoke detectors in corridors, stairwells/shafts, and archival areas, tie in of all sprinkler system trouble and alarm signals (including connection of pre-action system components), etc. for a complete installation meeting ULC-S524-06. Mircom by Firetech, Edwards, Simplex, or Notifier. Existing fire alarm system panel is to be removed. Existing fire alarm system wiring may be reused where in good condition and where acceptable to system manufacturer and local authority having jurisdiction.
- Emergency lighting and exit signage to meet current codes, installed throughout the facility. Central battery banks are anticipated to feed the emergency lighting.
- General use receptacles throughout all renovated areas to meet current codes and by-laws. Provide floor mounted electrical outlets fed from floor below for all outlets in open floor areas.
- New lighting throughout the entire main and second floors. All new lighting is to be c/w Manitoba Power Smart approved ballasts. Rebates to go to electrical contractor, with record of same to be provided to owner (for information only). New lighting to be single lamp T8 fluorescent strips in the vault areas, two lamp T8 in the washrooms. T5 HO fluorescent direct/indirect fixtures to be used in the remaining areas, equal to Ledalite Sync. Luminaires in the Multi-purpose space are to be c/w 1% dimming ballasts.
- Lighting control to generally be local line voltage switching, with the exception of occupancy sensors in the washroom/staff rooms. Multi-purpose room is to include dimming controls for the overhead fluorescent luminaires.
- New exterior building mounted lighting at North, East and South sides. Existing lighting on West side to remain.
- Wiring method to generally be EMT conduit. Minimum wire size #12 AWG copper.
- Network active equipment by others. All other communication raceways, cabling and jacking, LAN rack(s) and patch panels to be in contract c/w 25 year cable installation warranty. Minimum two cables per voice/data outlet. J-hooks may be used in concealed (but accessible) ceiling areas. Cable tray is to be used in exposed ceiling areas. Wireless access to be provided in the public main floor area. LAN rack to be placed in the basement.
- New complete building CCTV system to be included. Cameras are to cover all exterior entrances, main floor public area, and entrances to vault.

- Extension of existing building security system. Include monitoring of all new/modified exterior doors and entrances to the vault. Existing system is DSC Maxsys.
- Provision of a new card access system for the facility. Include all doors as indicated on architectural.
- Demolition of existing electrical to accommodate new renovations. Existing wiring within renovated areas that is no longer required is to be completely removed back to source. Demolition is to include, but is not limited to: removal of existing lighting on main & second floors, removal of electrical on existing walls being demolished, removal of existing panels, switching and fire alarm panel behind existing reception area. New luminaire switches and panel(s) to refeed existing loads in the area to be located in the airlock entrance to vault, behind new reception area.

Appendix B

Appropriate Archival Vault Construction Materials

(see following pages)

TYPE OF MATERIAL	BEST	WORST
<p>Unmodified (Solid) Wood Wood contains and offgasses acidic products. The acetyl groups it contains react with water to release acetic acid. It is therefore not recommended for large-scale use but may be desirable for decorative purposes.</p>	<p>NOTE: All wood is unacceptable. Where wood cannot be avoided, the following materials are the best to use.</p> <p>Aged, conditioned, dried wood of the less acidic species (maple, elm) sealed with an acceptable coating. (See Paint and Varnish section).</p>	<p>Green, unconditioned, knotty, unsealed wood.</p> <p>Wood of the more acidic species (red cedar, oak).</p>
<p>Modified Wood A composite panel, hardwood panel, fibreboard or plywood composed of wood held together by an adhesive. The more adhesive, the cheaper the board.</p>	<p>NOTE: All wood is unacceptable. Where wood cannot be avoided, the following materials are the best to use.</p> <p>Boards with a phenol-formaldehyde, epoxy or polyurea-based adhesive.</p> <p>Boards covered with a vapour shield (Melamine™, Formica™, Arborite™, ABS, Marvelseal™).</p> <p>Boards with a phenol formaldehyde impregnated paper overly (High or Medium Density Overlaid plywood)</p> <p>Exterior grade particleboard (eg: Medex™).</p>	<p>Boards containing an adhesive which has a rubber or urea-formaldehyde base, drying oil or polyformaldehyde.</p> <p>Untempered or oil-tempered hardboard (Masonite™), waferboard, chipboard, particleboard or fibreboard.</p> <p>Interior grade plywood and particleboards.</p> <p>Plywoods without overlays.</p>
<p>Paint and Varnish Paint and varnish coatings must be inert, act as a good vapour shield, not give off any volatile products and be chemically stable.</p>	<p>Acrylic resin emulsion paints are the most inert followed by a vinyl-acrylic resin or modified acrylic paint.</p> <p>Acrylic resin or acrylic-urethane resin varnishes are the most inert. Two component urethane is acceptable.</p> <p>Insul-Aid™ by Glidden is a good vapour shield.</p>	<p>Oil-based and alkyd resin paints, and urethane-based varnishes made from modified oils (Varthane™ by Flecto), are the least inert and release the most volatile products.</p> <p>One-component unmodified epoxy paints and polyurethane are also to be avoided.</p> <p>Avoid paints containing cadmium sulphide pigments.</p>
<p>Paint for Cement and Concrete Painted cement and concrete is less abrasive and creates less alkaline dust than unpainted cement and concrete.</p>	<p>As above.</p> <p>Utilize a tri-sodium phosphate solution to clean the floor before applying paint.</p>	<p>As above.</p> <p>Avoid use of a muriatic acid solution to clean floors before painting.</p>
TYPE OF MATERIAL	BEST	WORST
<p>Paint for Metal</p>	<p>Powder coatings are inert for use in closed and open systems. Properly cured baked alkyd resin coatings are suitable for use in open storage</p>	<p>Uncured alkyd resin coatings are not suitable.</p>

	systems.	Avoid paints containing cadmium sulphide pigments.
Synthetic Polymers (Eg: Plastics, Weatherstripping, Foam) The nature of a plastic is determined by its base polymers and additives (fillers, plasticizers, anti-oxidants and dyes).	ABS (most acceptable) Polyamide (Nylon) Polycarbonate Polyethylene Polyethylene terephthalate Poly(methyl methacrylate) (Acrylic™) Polypropylene Polystyrene Polytetrafluorethylene (Teflon™) Polyvinylidene chloride (PVDC) Ester-type polyurethane Alkaline-cured silicone (least acceptable)	Vulcanized or chlorinated rubber Cellulose nitrate Cellulose acetate, propionate & butyrate Polyvinyl acetate (PVAc) Polychloroprene (Neoprene™) Polyvinyl chloride (PVC) Ether & ester-type polyurethane Urea formaldehyde Acid-cured silicone products Vinyls
Sealants	Silicone caulking is stable and inert. Although both the acidic and alkaline types release volatile products, the alkaline type is preferred as it may offgas more quickly.	Avoid acid-cured silicone caulking.
Adhesives Most adhesives will yellow, become more acidic and brittle, or crack and crumble.	Acrylic adhesives (resins and emulsions) and hot-melt adhesives composed of ethylene-vinyl acetate and wax. Vinyl-acetate resins are less desirable.	Single component epoxies. Adhesives containing sulphur (polysulphides), cellulose nitrate or chlorine (polychloroprenes). Rubber-based pressure sensitive adhesives.

This chart is based primarily on information contained in Materials of Construction, Materials of Destruction (1992) by Jean Tetreault, Canadian Conservation Institute and Guidelines for Selecting Materials for Exhibit, Storage and Transportation (1993) by Jean Tetreault and Scott Williams, Canadian Conservation Institute.

Appendix C

Class 'C' Capital Construction Costs Estimate
(see following pages)

**CARNEGIE BUILDING
RENOVATION TO ARCHIVES
WINNIPEG, MANITOBA**

CLASS 'C' ESTIMATE

**July 28, 2010
Revised: Aug 12, 2010**

Hanscomb

**CARNEGIE BUILDING
RENOVATION TO ARCHIVES
WINNIPEG, MANITOBA**

CLASS 'C' ESTIMATE

Prepared For:

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420-A STRADBROOK AVE.
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**July 28, 2010
Revised: Aug 12, 2010
PROJECT NUMBER: W-1206**

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Appendices

- A - Detailed Elemental Cost Estimate
- B - Capital Construction Costs And Alternate Prices
- C - Drawing List

1. INTRODUCTION

- 1.1 Purpose: This **Class 'C' Estimate** is intended to provide a realistic allocation of direct and indirect construction costs for the **Carnegie Building, Renovation to Archives**, located in **Winnipeg, Manitoba**, with exceptions of items listed in 1.4 below.
- 1.2 Methodology: From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a **stipulated lump sum** form of contract in **Winnipeg, Manitoba**.
- Pricing shown reflects probable construction costs obtainable in the **Winnipeg, Manitoba** area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.
- 1.3 Specifications: For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.
- 1.4 Exclusions: This **Class 'C' Estimate** does not provide for the following, if required:
- Development charges
 - Legal fees and expenses
 - Right of way charges
 - Easement costs
 - Financing costs
 - Fund raising costs
 - Owner's staff and associated management
 - Relocation of existing facilities, including furniture and equipment
 - Professional fees and expenses
 - Cost of contaminated soil removal
 - Costs of asbestos removal
 - Costs of p.c.b. contaminated electrical equipment removal
 - Kitchen equipment

1. INTRODUCTION

1.4 Exclusions:
(continued)

- Window washing equipment
- Maintenance equipment
- Special audio, visual, security equipment or installation other than provision of empty conduit systems carried in electrical division
- Loose furniture, furnishings and equipment, apart from office cubicles and chairs included in B31
- Window treatments
- Overtime allowance
- Cash allowances
- Third Party Commissioning Costs
- Construction contingency
- Preventative maintenance contracts
- Building permit
- Goods and Services Tax

2. DOCUMENTATION

- This [Class 'C' Estimate](#) has been prepared from the documentation included in Appendix B of this report.

All of the above documentation was received from [Cibinel Architects Ltd.](#) and was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

3. COST CONSIDERATIONS

- 3.1 Cost Base: All costs are estimated on the basis of competitive bids (a minimum of six (6) general contractor bids and at least four (4) subcontractor bids for each trade) being received in July 2010 from general contractors and all major subcontractors and suppliers based on a stipulated lump sum form of contract.
- Should the above bidding conditions not occur, we can expect to see an increase in the estimated cost of construction.
- 3.2 Escalation: A contingency of 21% has been included for construction cost escalation that may occur between July 2010 and the anticipated bid date(s) for the project. Based on planned \$500,000 expenditure per annum, it is envisaged that the project would take fourteen years. Assuming 3% per annum escalation, total anticipated escalation for fourteen years would be 21%. Escalation during the construction period is included in the unit rates used in the estimate.
- 3.3 Contingencies: A contingency of 8.0% has been included to cover design and pricing unknowns. This contingency is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners during the remaining contract document stages.
- No contingency has been included to cover construction (post contract) unknowns. It is recommended that a provision for this item be included in the overall program budget
- 3.4 Unit Rates: The unit rates in the preparation of this Class 'C' Estimate include labour and material, equipment, subcontractor's overheads and profits.
- 3.5 Taxes: Provincial Sales Tax and Retail Sales Tax is included where applicable. No provision has been made for the Goods and Services Tax. It is recommended that the owner make separate provision for GST in the project budget.

3. COST CONSIDERATIONS (cont'd)

3.6 Statement of Probable Costs: Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

Hanscomb has prepared this estimate in accordance with generally accepted principles and practices. Hanscomb's staff is available to discuss its contents with any interested party.

3.7 Ongoing Cost Control: Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that a final update estimate be produced by Hanscomb using Bid Documents to determine overall cost changes which may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

4. GROSS FLOOR AND SITE DEVELOPED AREAS

GROSS FLOOR AREA:

Description	Sq. ft
Basement	10,318
Main Floor	10,227
Main Mezzanine	3,748
Second Floor	9,652
Second Mezzanine	3,392
TOTAL	37,337

The above areas have been measured in accordance with the third edition of the Canadian Institute of Quantity Surveyors' "Measurement of Buildings by Area and Volume".

5. CONSTRUCTION COST ESTIMATE SUMMARY

COST SUMMARY:

		Amount		
- New Construction		\$ 4,694,300		
- Site and Ancillary Work		\$ 658,100		
Total- Including Site		\$ 5,352,400		
- Phasing Premium	5.0%	\$ 267,600		
- General Requirements	8.0%	\$ 449,600		
- Fee	3.0%	\$ 182,100		
Total- Excluding Contingencies		\$ 6,251,700		
- Design and Pricing Allowance	8.0%	\$ 500,140		
- Escalation Allowance	21.0%	\$ 1,417,890		
- Construction Allowance		Excluded		
Total- Including Contingencies		\$ 8,169,700		
- Goods & Services Tax		Excluded		
Total Construction Estimate		\$ 8,169,700		

**Appendix
A - Detailed Elemental Cost Estimate**

Project : **CARNEGIE BUILDING, 380 WILLIAM AVENUE**
 : **ARCHIVES RENOVATION**
 Location : **WINNIPEG, MANITOBA**
 Owner : **CITY OF WINNIPEG ARCHIVES**
 Consultant : **CIBINEL ARCHITECTS LIMITED**

ELEMENTAL COST SUMMARY

Report date : 12 Aug 2010
 Page No. : A - 1
 Bldg Type : 380
 C.T. Index : 0.0
 GFA : 37,337 SF

Element	Ratio to GFA	Elemental Cost		Elemental Amount		Rate per SF		%
		Quantity	Unit rate	Sub-Total	Total	Sub-Total	Total	
A SHELL		37,337 SF			562,000		15.10	9.0
A1 SUBSTRUCTURE					59,000		1.60	0.9
A11 Foundations	0.280	10,318 SF	0.00	0	0	0.00		
A12 Basement Excavation					0	0.00		
A13 Special Conditions	0.000	1 Sum	59,000.00	59,000		1.60		
A2 STRUCTURE					298,600		8.00	4.8
A21 Lowest Floor Construction	0.280	10,318 SF	8.00	83,400		2.20		
A22 Upper Floor Construction	0.030	1,210 SF	58.00	70,700		1.90		
A23 Roof Construction	0.240	9,107 SF	16.00	144,500		3.90		
A3 EXTERIOR ENCLOSURE					204,400		5.50	3.3
A31 Walls Below Grade				0		0.00		
A32 Walls Above Grade				0		0.00		
A33 Windows & Entrances				0		0.00		
A34 Roof Coverings	0.240	9,107 SF	20.00	177,600		4.80		
A35 Projections	0.000	1 Sum	26,800.00	26,800		0.70		
B INTERIORS		37,337 SF			2,415,900		64.70	38.6
B1 PARTITIONS & DOORS					250,200		6.70	4.0
B11 Partitions	0.250	9,380 SF	17.00	163,400		4.40		
B12 Doors	0.000	44 No.	1,973.00	86,800		2.30		
B2 FINISHES					235,200		6.30	3.8
B21 Floor Finishes	1.000	37,337 SF	3.00	125,500		3.40		
B22 Ceiling Finishes	1.000	37,337 SF	2.00	78,700		2.10		
B23 Wall Finishes	0.830	30,998 SF	1.00	31,000		0.80		
B3 FITTINGS & EQUIPMENT					1,930,500		51.70	30.9
B31 Fittings & Fixtures	1.000	37,337 SF	8.00	297,900		8.00		
B32 Equipment	1.000	37,337 SF	41.00	1,522,600		40.80		
B33 Elevators	0.000	1 No	110,000.00	110,000		2.90		
B34 Escalators				0		0.00		
C SERVICES		37,337 SF			1,716,400		46.00	27.5
C1 MECHANICAL					985,100		26.40	15.8
C11 Plumbing & Drainage	1.000	37,337 SF	2.00	73,200		2.00		
C12 Fire Protection	1.000	37,337 SF	6.00	223,700		6.00		
C13 HVAC	1.000	37,337 SF	16.00	601,600		16.10		
C14 Controls	1.000	37,337 SF	2.00	86,600		2.30		
C2 ELECTRICAL					731,300		19.60	11.7
C21 Service & Distribution	1.000	37,337 SF	1.00	49,200		1.30		
C22 Lighting, Devices & Heating	1.000	37,337 SF	10.00	379,200		10.20		
C23 Systems & Ancillaries	1.000	37,337 SF	8.00	302,900		8.10		
NET BUILDING COST - EXCLUDING SITE					\$ 4,694,300		125.73	75.1
D SITE & ANCILLARY WORK		37,337 SF			658,100		17.60	10.5
D1 SITE WORK					6,700		0.20	0.1
D11 Site Development	0.000	137 SF	1.00	200		0.00		
D12 Mechanical Site Services				0		0.00		
D13 Electrical Site Services	0.000	1 Sum	6,500.00	6,500		0.20		
D2 ANCILLARY WORK					651,400		17.40	10.4
D21 Demolitions	1.000	37,337 SF	3.00	129,900		3.50		
D22 Alterations	1.000	37,337 SF	14.00	521,500		14.00		
NET BUILDING COST - INCLUDING SITE					\$ 5,352,400		143.35	85.6
Z1 GENERAL REQUIREMENTS & FEE					899,300		24.10	14.4
Z10 Phasing Premium		5.0 %		267,600		7.20		
Z11 General Requirements		8.0 %		449,600		12.00		
Z12 Fee		3.0 %		182,100		4.90		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING CONTINGENCIES					\$ 6,251,700		167.44	100.0
Z2 ALLOWANCES					1,918,000		51.40	
Z21 Design & Pricing Allowance		8.0 %		500,100		13.40		
Z22 Escalation Allowance		21.0 %		1,417,900		38.00		
Z23 Construction Allowance		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING CONTINGENCIES					\$ 8,169,700		218.81	
GOODS & SERVICES TAX					0		0.00	
Goods & Service Tax		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE					\$ 8,169,700		\$ 218.80	

**CARNEGIE BUILDING, 380 WILLIAM AVENUE
ARCHIVES RENOVATION
WINNIPEG, MANITOBA**

Report date : August 2010

Page No. : A - 2

A1 SUBSTRUCTURE	Quantity	Unit rate	Amount	Location
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A13 Special Conditions

1	18" dia Concrete pile, 35'0" long, 35Mpa, S1	44 No.	1,000.00	44,000
2	Allow premium to last for equipment access	1 Sum	10,000.00	10,000
3	Allowance for dewatering	1 Sum	5,000.00	5,000

A13 Special Conditions	TOTAL : \$	1 Sum	59,000.00	59,000
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**CARNEGIE BUILDING, 380 WILLIAM AVENUE
ARCHIVES RENOVATION
WINNIPEG, MANITOBA**

Report date : August 2010

Page No. : A - 3

A2 STRUCTURE	Quantity	Unit rate	Amount	Location
A21 Lowest Floor Construction				
1	8" thick Reinforced concrete slab on grade c/w 6" void form	3,824 sf	14.40	55,240
	- Concrete, supply & place, 25Mpa	95 cy	185.00	17,580 Demo. of Exist. B
	- Rebar	15,770 lb	1.00	15,770 Demo. of Exist. B
	- 6" Void form	3,824 sf	4.00	15,300 Demo. of Exist. B
	- 10" thick granular fill	118 cy	30.00	3,540 Demo. of Exist. B
	- Vapour barrier	3,824 sf	0.20	760 Demo. of Exist. B
	- Finish concrete surface	3,824 sf	0.60	2,290 Demo. of Exist. B
2	Extra to last for drop panels 1m x 1m x 0.30m	44 No.	400.00	17,600
3	Concrete consumables	1 Sum	10,550.00	10,550
<hr/>				
A21 Lowest Floor Construction	TOTAL : \$	10,318 SF	8.08	83,400
<hr/>				
A22 Upper Floor Construction				
1	New concrete filled metal pan stair c/w handrail and guardrails	4 Flight	8,000.00	32,000 Internal FR Stair
2	New slab c/w metal deck w/ concrete topping at Main Mezzanine level	560 sf	30.60	17,130
	- Concrete topping, 4" thick (assumed), 25Mpa	7 cy	185.00	1,300 Infill Ex. Openin
	- Welded wire mesh	560 sf	0.60	340 Infill Ex. Openin
	- Metal deck, 1 1/2" deep	560 sf	3.70	2,070 Infill Ex. Openin
	- Steel beam including connections	3,866 lb	2.00	7,730 Infill Ex. Openin
	- Steel column including connections	1,775 lb	2.00	3,550 Infill Ex. Openin
	- Intumescent paint to steel structures	5,641 lb	0.30	1,690 GWB FP for Mezzan
	- screed/cure/finish	560 sf	0.80	450 Infill Ex. Openin
3	New slab c/w metal deck w/ concrete topping at Second Mezzanine level	580 sf	33.90	19,650
	- Concrete topping, 4" thick (assumed), 25Mpa	7 cy	185.00	1,300 Infill Ex. Openin
	- Welded wire cage	580 sf	0.60	350 Infill Ex. Openin
	- Metal deck, 1 1/2" deep	580 sf	3.70	2,150 Infill Ex. Openin
	- Steel beam including connections	5,514 lb	2.00	11,030 Infill Ex. Openin
	- Steel column including connections	1,174 lb	2.00	2,350 Infill Ex. Openin
	- Intumescent paint to steel structures	6,688 lb	0.30	2,010 GWB FP for Mezzan
(Continued)				
<hr/>				
Carried Forward :				68,780

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A2 STRUCTURE		Quantity	Unit rate	Amount	Location
A22	Upper Floor Construction (Continued)		Brought Forward :	68,780	
3	New slab c/w metal deck w/ concrete topping at Second Mezzanine level (Continued)				
	- screed/cure/finish	580 sf	0.80	460	Infill Ex. Openin
4	Concrete consumables	1 Sum	1,900.00	1,900	
A22 Upper Floor Construction		TOTAL : \$	1,210 SF	58.43	70,700
A23 Roof Construction					
1	New steel framed flat roof structure c/w glavanized zinc coated metal deck	9,107 sf	15.90	144,500	
	- Galvanized zinc coated metal deck	9,107 sf	3.70	33,700	New Roof Structur
	- New steel column including connections	2,690 lb	2.00	5,380	New Roof Structur
	- Joist structure	45,485 lb	2.00	90,970	New Roof Structur
	- Intumescent paint to new steel structure	48,175 lb	0.30	14,450	New Roof Structur
A23 Roof Construction		TOTAL : \$	9,107 SF	15.87	144,500

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A3 EXTERIOR ENCLOSURE		Quantity	Unit rate	Amount	Location
A34 Roof Coverings					
1	Light coloured 2 ply SBS roof membrane system on sloped EPS insulation (flat area)	9,107 sf	18.00	163,930	New Roof Structur
2	Roof accessories	9,107 sf	1.50	13,660	New Roof Structur
A34 Roof Coverings		TOTAL : \$	9,107 SF	19.50	177,600
A35 Projections					
1	Excavation & disposal	4 cy	23.00	90	Exterior Masonry
2	18" dia Cast in place concrete pile, 30' long , S1	120 ft	55.00	6,600	Exterior Masonry
3	Pile cap	4 No.	400.00	1,600	Exterior Masonry
4	8" thick concrete slab on grade w/ 6" thick void form	137 sf	10.00	1,370	Exterior Masonry
5	10"x30" concrete grade beam	35 ft	70.00	2,450	Exterior Masonry
6	Perimeter drainage	35 ft	20.00	700	Exterior Masonry
7	New load-bearing masonry wall to elevator enclosure	700 sf	20.00	14,000	Exterior Masonry
A35 Projections		TOTAL : \$	1 Sum	26,800.00	26,800

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount	Location
B11 Partitions					
<u>Basement</u>					
1	Type W3: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud	1,144 sf	10.00	11,440	
2	Type W4: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud w/ 4" batt insulation	165 sf	11.00	1,820	
<u>Main Floor</u>					
3	Type W1: Type "X", 5/8" Gypsum wall board on one side of 2x2 steel stud w/ 2" polyurethane sprayform	763 sf	8.30	6,330	
4	Type W2: Type "X", 5/8" Gypsum wall board on both sides of 2x6 steel stud w/6" batt insulation & 6 mil poly. V.B.	410 sf	14.00	5,740	Infill Ex. Openin
5	Type W3: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud	182 sf	10.00	1,820	
6	Type W4: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud w/ 4" batt insulation	140 sf	11.00	1,540	
7	Type W4: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud w/ 4" batt insulation to stair enclosure	154 sf	11.00	1,690	Internal FR Stair
8	Type W5: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud w/ 4" batt insulation	168 sf	11.00	1,850	
9	Type W8: Type "X", 5/8" Gypsum wall board on one side of 2x6 steel stud w/ 6" closed cell polyurethane spray form insualtion	791 sf	12.80	10,120	
10	New 9' high glass & wood partition to room #107, AV POD	387 sf	65.00	25,160	New Wood Partitio
Carried Forward :				67,510	

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount	Location
B11	Partitions (Continued)		Brought Forward :	67,510	
11	New glass & wood partition at Multi-purpose room(MPR)	325 sf	59.20	19,250	
	- Glazed partition c/w wood frame	250 sf	65.00	16,250	
	- Wood partition upto wainscotting height (3'0")	75 sf	40.00	3,000	
12	New glazed window with wood frame, type W9	123 sf	70.00	8,610	Infill Ex. Openin
13	New glazed window with wood frame, type W8	144 sf	70.00	10,080	
	<u>Second floor</u>				
14	Type W1: Type "X", 5/8" Gypsum wall board on one side of 2x2 steel stud w/ 2" polyurethane sprayform	2,160 sf	8.30	17,930	
15	Type W2: Type "X", 5/8" Gypsum wall board on both sides of 2x6 steel stud w/6" batt insulation & 6 mil poly. V.B.	349 sf	14.00	4,890	Infill Ex. Openin
16	Type W4: Type "X", 5/8" Gypsum wall board on both sides of 2x4 steel stud w/ 4" batt insulation	288 sf	11.00	3,170	
17	Type W6: Type "X", 5/8" Gypsum wall board on mechanically fastened self adhesive bitumen membrane	496 sf	4.80	2,380	
18	Type W7: 2-layers of type "X", 5/8" Gypsum board wall on existing wall to stair	140 sf	6.00	840	Internal FR Stair
19	Type W8: Type "X", 5/8" Gypsum wall board on one side of 2x6 steel stud w/ 6" closed cell polyurethane spray form insulation	784 sf	12.80	10,040	
20	New glazed window with wood frameE, type W9	123 sf	70.00	8,610	Infill Ex. Openin
21	New glazed window with wood frame, type W8	144 sf	70.00	10,080	
B11	Partitions	TOTAL : \$	9,380 SF	17.42	163,400

B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount	Location
B12 Doors					
<u>Basement</u>					
1	Hollow metal door and frame c/w hardware	10 Lvs	1,910.00	19,100	
	- Single door, fire rated with panic hardware	3 Lvs	1,900.00	5,700	
	- Single door, fire rated	3 Lvs	1,800.00	5,400	
	- Elevator door w/ card access, insulated, etc.	2 Lvs	2,200.00	4,400	
	- Single door	1 Leaf	1,700.00	1,700	
	- Single door insulated w/ panic hardware	1 Leaf	1,900.00	1,900	
<u>Main Floor</u>					
2	Hollow metal door and frame c/w hardware	11 Lvs	1,860.00	20,460	
	- Single door, fire rated with panic hardware	1 Leaf	1,900.00	1,900	
	- Single door, fire rated	1 Leaf	1,800.00	1,800	
	- Elevator door c/w fire rated, panic bolt, card access, insulated , etc.	1 Leaf	2,200.00	2,200	
	- Single washroom doors	2 Lvs	1,200.00	2,400	
	- Single door	3 Lvs	1,700.00	5,100	
	- Single door c/w insulated, panic bolt, card access, fire rated	1 Leaf	3,100.00	3,100	
	- Single door c/w insulated, panic bolt, fire rated to vestibule	1 Leaf	1,980.00	1,980	Infill Ex. Openin
	- Single door c/w insulated, panic bolt, fire rated	1 Leaf	1,980.00	1,980	
3	Glazed double door c/w wood frame & panic bolt hardware	2 Pairs	3,800.00	7,600	
4	Glazed single door c/w wood frame & hardware	1 Leaf	2,100.00	2,100	
5	Single wood door c/w wood frame & hardware	1 Leaf	1,800.00	1,800	Infill Ex. Openin
6	Reception area glazed wood door	1 Leaf	1,800.00	1,800	
7	Refinish existing doors	3 No.	933.30	2,800	
	- Glazed single door & wood frame c/w panic hardware	1 Leaf	1,600.00	1,600	
	- Single wood door	2 Leaf	600.00	1,200	
Carried Forward :				55,660	

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B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount	Location
B12	Doors (Continued)		Brought Forward :	55,660	
	<u>Second Floor</u>				
8	Hollow metal door and frame c/w hardware	7 Lvs	1,968.60	13,780	
	- Single door, fire rated	1 Leaf	1,800.00	1,800	
	- Single door c/w fire rated, panic bolt, card access, insulated , etc.	1 Leaf	2,200.00	2,200	
	- Single washroom doors	2 Lvs	1,200.00	2,400	
	- Single door c/w insulated, panic hardware	1 Leaf	1,700.00	1,700	
	- Single door c/w insulated, panic bolt, fire rated	1 Leaf	1,900.00	1,900	
	- Single door c/w insulated, panic bolt, fire rated, vestibule	1 Leaf	1,980.00	1,980	Infill Ex. Openin
	- Single door c/w insulated, panic bolt, fire rated	1 Leaf	1,800.00	1,800	
9	Glazed single door c/w wood frame & hardware, fire rated , card access insulated	1 Leaf	3,400.00	3,400	
10	Refinish existing doors	5 No.	2,440.00	12,200	
	- Glazed single door & wood frame	2 Lvs	1,600.00	3,200	
	- Glazed double door & wood frame	3 Pairs	3,000.00	9,000	
11	Single wood door c/w wood frame & hardware	1 Leaf	1,800.00	1,800	Infill Ex. Openin
B12	Doors	TOTAL : \$	44 No.	1,972.73	86,800

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B2 FINISHES	Quantity	Unit rate	Amount	Location	
B21 Floor Finishes					
<u>Basement</u>					
1	Allowance for floor finishes on basement floors	8,589 sf	2.00	17,180	Basement Finishes
2	Vinyl flooring to room #007	129 sf	5.30	680	
3	Cove base to room#007	66 ft	4.50	300	
4	Unfinished area (wall, elevator - 1,600sf)		Note		Basement Finishes
<u>Main Floor (10,227sf)</u>					
5	Carpet flooring	4,078 sf	4.50	18,350	Main Floor Finish
6	Linoleum flooring	1,029 sf	5.30	5,450	Main Floor Finish
7	Linoleum flooring for Climate control vault	2,312 sf	5.30	12,250	Finishes - CC Vau
8	Linoleum floor to vestibule	112 sf	5.30	590	Infill Ex. Openin
9	Floor finishes - NIC (1,141sf)		Note		Main Floor Finish
10	Unfinished area (wall, elevator - 1,555sf)		Note		Main Floor Finish
11	Wood base	506 ft	4.50	2,280	Main Floor Finish
12	Rubber base	210 ft	2.00	420	Main Floor Finish
13	Cove base	384 ft	4.50	1,730	Main Floor Finish
<u>Main Mezzanine Floor (3,748sf)</u>					
14	Linoleum flooring	278 sf	5.30	1,470	Main Floor Finish
15	Linoleum flooring for Climate Control Vault	2,142 sf	5.30	11,350	Finishes - CC Vau
16	Linoleum floor to Vestibule	112 sf	5.30	590	Infill Ex. Openin
17	Unfinished area (wall, elevator - 1,216sf)		Note		Main Floor Finish
			Carried Forward :	72,640	

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B2 FINISHES		Quantity	Unit rate	Amount	Location
B21	Floor Finishes (Continued)		Brought Forward :	72,640	
18	Cove base <u>Second Floor (9,652sf)</u>	210 ft	4.50	950	Main Floor Finish
19	Carpet flooring	4,379 sf	4.50	19,710	Second Flr Finish
20	Linoleum flooring for Climate Control Vault	2,956 sf	5.30	15,670	Finishes - CC Vau
21	Linolium floor to Vestibule	112 sf	5.30	590	Infill Ex. Openin
22	Unfinished area (wall, elevator - 1,274sf)		Note		Second Flr Finish
23	Floor finishes - NIC (931sf)		Note		Main Floor Finish
24	Rubber base	125 ft	2.00	250	Second Flr Finish
25	Cove base <u>Second Mezzanine Floor (3,392sf)</u>	645 ft	4.50	2,900	Second Flr Finish
26	Linoleum flooring to Climate Control Vault	2,145 sf	5.30	11,370	Finishes - CC Vau
27	Linoleum flooring to Vestibule	102 sf	5.30	540	Infill Ex. Openin
28	Unfinished area (wall, elevator - 1,145sf)		Note		Second Flr Finish
29	Cove base	201 ft	4.50	900	Second Flr Finish
B21	Floor Finishes	TOTAL : \$	37,337 SF	3.36	125,500
B22	Ceiling Finishes <u>Basement (10,318sf)</u>				
1	Allowance for ceiling finishes for basement	8,519 sf	1.50	12,780	Basement Finishes
2	Acoustic ceiling system to room #007	129 sf	4.30	550	
			Carried Forward :	13,330	

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B2 FINISHES	Quantity	Unit rate	Amount	Location
B22 Ceiling Finishes (Continued)		Brought Forward :	13,330	
3 Unfinished area (wall, elevator - 1,600sf)		Note		Basement Finishes
4 Painted, 5/8" type "X" GWB ceiling system to stair area <u>Main Floor (3,748sf)</u>	70 sf	10.30	720	Basement Finishes
5 Painted, 5/8" type "X" GWB ceiling system to Climate control vault	2,081 sf	10.30	21,430	Finishes - CC Vau
6 Painted, 5/8" type "X" GWB ceiling system to Vestibule	112 sf	10.30	1,150	Infill Ex. Openin
7 Unfinished area (walls, elevator - 1,555sf) <u>Main Mezzanine Floor (10,227sf)</u>		Note		Main Floor Finish
8 Paint to exposed structure	5,616 sf	1.00	5,620	Main Floor Finish
9 Painted to exposed structure to Climate control vault	2,142 sf	1.00	2,140	Finishes - CC Vau
10 Painted to exposed structure to Climate control vault	112 sf	1.00	110	Infill Ex. Openin
11 Unfinished area (walls, elevator - 1,216sf)		Note		Main Floor Finish
12 Ceiling finishes - NIC (1,141SF) <u>Second Floor (3,392sf)</u>		Note		Main Floor Finish
13 Painted, 5/8" type "X" GWB ceiling system to Climate Control Vault	2,006 sf	10.30	20,660	Finishes - CC Vau
14 Painted, 5/8" type "X" GWB ceiling system to Vestibule	112 sf	10.30	1,150	Infill Ex. Openin
15 Unfinished area (walls, elevator - 1,274sf)		Note		Second Flr Finish
		Carried Forward :	66,310	

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B2 FINISHES		Quantity	Unit rate	Amount	Location
B22	Ceiling Finishes (Continued)		Brought Forward :	66,310	
	<u>Second Mezzanine Floor (9,652sf)</u>				
16	Paint to exposed structure	6,260 sf	1.00	6,260	Second Flr Finish
17	Paint to exposed structure at Climate Control Vault	2,145 sf	1.00	2,150	Finishes - CC Vau
18	Paint to exposed structure at Vestibule	102 sf	1.00	100	Infill Ex. Openin
19	Unfinished area (walls, elevator - 1,145sf)		Note		Second Flr Finish
20	Extra over for shelf adhering bitumen membrane on existing plaster finish ceiling <u>Separate price</u>	1,765 sf	2.20	3,880	Second Flr Finish
21	Metal furring channels w/ 5/8" type "X" gypsum wall board to u/s of mezzanine structure (3,723@\$6.00=\$22,338.00)		Note		
	- Main Mezzanine (2,255sf@\$6.00=\$13,530.00)	0 Nil	0.00	0	Finishes - CC Vau
	- Second Mezzanine(1,468sf@\$6.00=\$8,808.00)	0 Nil	0.00	0	Finishes - CC Vau
22	Additional allowance for metal furring & gypsum wall board to columns & beams (2,614sf@\$7.20= \$18,820.80)		Note		Finishes - CC Vau
B22	Ceiling Finishes	TOTAL : \$	37,337 SF	2.11	78,700
B23	Wall Finishes				
	<u>Basement</u>				
1	Paint to new walls at Basement area	2,618 sf	1.00	2,620	Basement Finishes
			Carried Forward :	2,620	

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B2 FINISHES		Quantity	Unit rate	Amount	Location
B23	Wall Finishes (Continued)		Brought Forward :	2,620	
	<u>Main Floor</u>				
2	Paint to wall	11,601 sf	1.00	11,600	Main Floor Finish
3	Paint to wall at Climate control vault area	700 sf	1.00	700	Finishes - CC Vau
4	Paint to vestibule walls	459 sf	1.00	460	Infill Ex. Openin
	<u>Main Mezzanine Floor</u>				
5	Paint to wall	651 sf	1.00	650	Main Floor Finish
6	Paint to wall at Climate control vault area	700 sf	1.00	700	Finishes - CC Vau
7	Paint to vestibule wall	539 sf	1.00	540	Infill Ex. Openin
	<u>Second Floor</u>				
8	Paint to wall	10,668 sf	1.00	10,670	Second Flr Finish
9	Paint to wall at Climate Control Vault area	700 sf	1.00	700	Finishes - CC Vau
10	Paint to Vestibule wall	472 sf	1.00	470	Infill Ex. Openin
	<u>Second Mezzanine Floor</u>				
11	Paint to wall	765 sf	1.00	770	Second Flr Finish
12	Paint to wall at Climate Control Vault area	700 sf	1.00	700	Finishes - CC Vau
13	Paint to Vestibule wall	425 sf	1.00	430	Infill Ex. Openin
B23 Wall Finishes		TOTAL : \$	30,998 SF	1.00	31,000

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B3 FITTINGS & EQUIPMENT		Quantity	Unit rate	Amount	Location
B31 Fittings & Fixtures					
1	Washroom accessories to Rm.# 116, 117, 214 & 215	4 No.	1,500.00	6,000	
2	Millwork	1 Sum	257,050.00	257,050	
	- Reception desk w/transaction counter, lower cabinet, wood finish etc. (MWK101)	36 LF	950.00	34,200	AV Pod 107, etc.
	- Lower cabinet 3' high with wood finish (MWK 102)	11 LF	140.00	1,540	Remainder of Cabi
	- Lower cabinet 3' high with open shelving and integrated with cast iron radiators (MWK 103)	68 LF	150.00	10,200	Remainder of Cabi
	- Lower cabinet 3' high with wood finish (MWK 104)	22 LF	160.00	3,520	Remainder of Cabi
	- P.lam finished lower cabinet with upper cabinet o/a height 8'c/w sink/faucet (MWK 105)	13 LF	400.00	5,200	Remainder of Cabi
	- Office cubicle including chair (MWK 201)	144 LF	750.00	108,000	Arch. & RMO MWK 2
	- 30' deep open metal shelving 8' high (MWK 202)	90 LF	200.00	18,000	Remainder of Cabi
	- 18' deep open metal shelving 8' high (MWK 203)	177 LF	160.00	28,320	Remainder of Cabi
	- 3' high 26" deep lower cabinet metal construction (MWK 204)	15 LF	110.00	1,650	Remainder of Cabi
	- 3' deep metal counter with lower and upper cabinets, 8' high (MWK 205)	17 LF	860.00	14,620	Remainder of Cabi
	- 3' deep metal counter with lower and upper cabinets, 8' high c/w sink/faucet (MWK 206)	10 LF	920.00	9,200	Remainder of Cabi
	- 3' deep metal counter with lower and upper cabinets, 8' high c/w double sink/faucet (MWK 207)	20 LF	980.00	19,600	Remainder of Cabi
	- Kichen cabinetry (upper & lower)	10 LF	300.00	3,000	AV Pod 107, etc.
3	Specialties	1 Sum	34,880.00	34,880	
	- Window roller blinds	2,325 SF	15.00	34,880	Window covering
B31 Fittings & Fixtures		TOTAL : \$	37,337 SF	7.98	297,900

B32 Equipment

Carried Forward : 0

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B3 FITTINGS & EQUIPMENT		Quantity	Unit rate	Amount	Location
B32	Equipment (Continued)		Brought Forward :	0	
1	48" x 16" mobile shelving units divided vertically into 5, 7' high (EQP 112)	1,596 ft	480.00	766,080	
	- At Basement level	742 ft	480.00	356,160	Demo. of Exist. B
	- At Main Floor	427 ft	480.00	204,960	Compact Shelving:
	- At Main Mezzanine level	331 ft	480.00	158,880	Compact Shelving:
	- At Main Mezzanine level	96 ft	480.00	46,080	Structural infill
2	48" x 16" mobile shelving units divided vertically into 5, 7' high (EQP 211)	1,576 ft	480.00	756,480	
	- At Second Floor	788 ft	480.00	378,240	Compact Shelving:
	- At Second Mezzanine	692 ft	480.00	332,160	Compact Shelving:
	- At Second Mezzanine	96 ft	480.00	46,080	Structural infill
B32	Equipment	TOTAL : \$	37,337 SF	40.78	1,522,600
B33	Elevators				
1	New elevator c/w 2 stops, vertical height 12'0"	1 No.	110,000.00	110,000	Exterior Masonry
B33	Elevators	TOTAL : \$	1 No	110,000.00	110,000

C1 MECHANICAL		Quantity	Unit rate	Amount	Location
C11 Plumbing & Drainage					
1	Wash room upgrades	1 Sum	13,600.00	13,600	
	- Replace water closet	4 No.	1,000.00	4,000	Water Closet Upgr
	- Replace lavatory	4 No.	900.00	3,600	Water Closet Upgr
	- Fixture rough-in - Modify	8 No.	250.00	2,000	Water Closet Upgr
	- Minor modifications to piping	1 Sum	2,000.00	2,000	Water Closet Upgr
	- Remove fixtures	8 No.	250.00	2,000	Water Closet Upgr
2	Storm drainage	1 Sum	8,900.00	8,900	
	- Roof drains	2 No.	700.00	1,400	New Roof Structur
	- Piping	100 LF	40.00	4,000	New Roof Structur
	- CTE	2 No.	750.00	1,500	New Roof Structur
	- Remove existing	1 Sum	1,500.00	1,500	New Roof Structur
	- Misc.	1 Sum	500.00	500	New Roof Structur
3	Condensate drain - Allow	1 Sum	16,000.00	16,000	Mechanical Equipm
4	Water supply to humidifiers c/w water softner	1 Sum	20,000.00	20,000	Mechanical Equipm
5	Natural gas - Modify existing for new boilers	1 Sum	6,000.00	6,000	Mechanical
6	Plumbing fixtures	1 Sum	3,900.00	3,900	
	- Replace water closet	1 No.	1,000.00	1,000	Mechanical
	- Replace lavatory	1 No.	900.00	900	Mechanical
	- Fixture rough-in - Modify	2 No.	250.00	500	Mechanical
	- Minor modifications to piping	1 Sum	1,000.00	1,000	Mechanical
	- Remove fixtures	2 No.	250.00	500	Mechanical
7	Add RST at 7%	1 Sum	4,790.00	4,790	Mechanical
C11 Plumbing & Drainage		TOTAL : \$	37,337 SF	1.96	73,200
C12 Fire Protection					
1	Sprinkler system	1 Sum	64,470.00	64,470	
	- Street connection	1 No.	5,000.00	5,000	Mechanical Equipm
	- 6" piping c/w trenching & bedding	50 LF	80.00	4,000	Mechanical Equipm
	- Double check valve assembly & sprinkler tree	1 Sum	15,000.00	15,000	Mechanical Equipm
	- Main piping	75 LF	90.00	6,750	Mechanical Equipm
(Continued)					
				Carried Forward :	64,470

C1 MECHANICAL		Quantity	Unit rate	Amount	Location
C12 Fire Protection	(Continued)		Brought Forward :	64,470	
1 Sprinkler system	(Continued)				
- Zone valves		4 No.	2,500.00	10,000	Mechanical Equipm
- Sprinkler to vault area only		5,200 SF	3.60	18,720	Mechanical Equipm
- Window sprinkler premium		10 No.	500.00	5,000	Mechanical Equipm
2 Sprinkler to balance area		32,137 SF	4.50	144,620	Mechanical
3 Add RST at 7%		1 Sum	14,640.00	14,640	Mechanical
C12 Fire Protection	TOTAL : \$	37,337 SF	5.99	223,700	
C13 HVAC					
1 Vault HVAC		1 Sum	200,000.00	200,000	
- Split A/C unit 2,200CFM, 54MBH, 12kW electric re-heat, built-in humidifier & remote condenser		4 No.	30,000.00	120,000	Mechanical Equipm
- ERV-1, 1,500CFM		1 No.	16,000.00	16,000	Mechanical Equipm
- Ductwork & devices		1 Sum	50,000.00	50,000	Mechanical Equipm
- Remove existing perimeter hydronic cabinet radiators in vault and cap piping		1 Sum	4,000.00	4,000	Mechanical Equipm
- New duct riser from existng AHU		1 Sum	10,000.00	10,000	Mechanical Equipm
2 Boiler replacement		1 Sum	140,000.00	140,000	
- 800MBH gas fired condensing boilers		3 No.	18,000.00	54,000	Mechanical
- Boiler vent - Modify to suit		2 Sum	4,000.00	8,000	Mechanical
- Primary pumps P-1/2		2 No.	3,000.00	6,000	Mechanical
- Pumps P-4/9 & 3/5		4 No.	5,000.00	20,000	Mechanical
- Pump P-6		1 No.	2,000.00	2,000	Mechanical
- Modify piping to suit		1 Sum	30,000.00	30,000	Mechanical
- Remove existing 6 No. boilers, pumps etc.		1 Sum	10,000.00	10,000	Mechanical
- Crane rental		1 Smu	10,000.00	10,000	Mechanical
3 Chiller replacement		1 Sum	86,000.00	86,000	
- New 50 ton water cooled chiller		1 No.	60,000.00	60,000	Mechanical
- Pump P-8		1 No.	5,000.00	5,000	Mechanical
- Modify piping		1 Sum	10,000.00	10,000	Mechanical
- Remove existing chiller		1 Sum	5,000.00	5,000	Mechanical
- Crane rental		1 Sum	6,000.00	6,000	Mechanical
			Carried Forward :	426,000	

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C1 MECHANICAL		Quantity	Unit rate	Amount	Location
C13	HVAC (Continued)		Brought Forward :	426,000	
4	Air distribution equipment	1 Sum	70,000.00	70,000	
	- Replace heating & cooling coils from existing AHU	1 Sum	60,000.00	60,000	Mechanical
	- Piping modification	1 Sum	10,000.00	10,000	Mechanical
5	HVAC modifications to reminder of building (Assume very minor works like relocate diffuser etc.)	33,137 SF	2.00	66,270	Mechanical
6	Add RST at 7%	1 Sum	39,360.00	39,360	Mechanical
C13 HVAC		TOTAL : \$	37,337 SF	16.11	601,600
C14 Controls					
1	Vault HVAC controls	1 Sum	30,000.00	30,000	
	- Split A/C unit	4 No.	5,000.00	20,000	Mechanical Equipm
	- ERV	1 No.	4,000.00	4,000	Mechanical Equipm
	- Misc. & tie-in	1 Sum	6,000.00	6,000	Mechanical Equipm
2	Controls for new/ replaced equip.	1 Sum	41,000.00	41,000	
	- Boilers	3 No.	5,000.00	15,000	Mechanical
	- Chiller	1 No.	5,000.00	5,000	Mechanical
	- Pumps	8 No.	2,000.00	16,000	Mechanical
	- Existing AHU - coil change	1 No.	5,000.00	5,000	Mechanical
3	Controls modifications to reminder of building (Assume very minor works like locate t'stat etc.)	33,137 SF	0.30	9,940	Mechanical
4	Add RST at 7%	1 Sum	5,660.00	5,660	Mechanical
C14 Controls		TOTAL : \$	37,337 SF	2.32	86,600

C2 ELECTRICAL		Quantity	Unit rate	Amount	Location
C21 Service & Distribution					
1	Distribution	1 Sum	38,000.00	38,000	
	- Remove old switchboard	1 Sum	2,000.00	2,000	Electrical(ex.vau
	- 600A-600V 4W Switchboard	1 Sum	15,000.00	15,000	Electrical(ex.vau
	- New CTSE and reconnection of existing 400Amp service cables	1 Sum	5,000.00	5,000	Electrical(ex.vau
	- 200 Amp 600Volt 4W Distribution Panel	1 No.	6,000.00	6,000	Electrical(ex.vau
	- Rework Existing Distribution to suit new layout	1 Sum	10,000.00	10,000	Electrical(ex.vau
2	Feeders	1 Sum	5,000.00	5,000	
	- 200 Amp Feeder	1 Sum	5,000.00	5,000	Electrical(ex.vau
3	Grounding	1 Sum	3,000.00	3,000	
	- Allowance for service & equipment grounding	1 Allow	3,000.00	3,000	Electrical(ex.vau
4	Add RST at 7%	1 Sum	3,220.00	3,220	Electrical(ex.vau
C21 Service & Distribution		TOTAL : \$	37,337 SF	1.32	49,200
C22 Lighting, Devices & Heating					
1	Lighting	1 Sum	153,150.00	153,150	
	- Purchase, install and wire light fixtures -Basement	10,318 SF	2.00	20,640	Electrical(ex.vau
	- Purchase, install and wire light fixtures -Main Floor less vault	7,657 SF	3.00	22,970	Electrical(ex.vau
	- Purchase, install and wire light fixtures -Office	100 SF	3.00	300	Electrical(ex.vau
	- Purchase, install and wire light fixtures -Main Mezzanine less vault	1,278 SF	3.00	3,830	Electrical(ex.vau
	- Purchase, install and wire light fixtures -Second Floor less vault	7,182 SF	3.00	21,550	Electrical(ex.vau
	- Purchase, install and wire light fixtures -2nd Mezzanine less vault	922 SF	3.00	2,770	Electrical(ex.vau
	- Purchase, install and wire light fixtures -Vault areas	9,880 SF	4.00	39,520	Electrical(ex.vau
	- Purchase, install and wire light fixtures	1 Allow	500.00	500	Electrical(ex.vau
	- Branch Wiring	27,357 SF	1.10	30,090	Electrical(ex.vau
	- Branch Wiring	100 SF	1.10	110	Electrical(ex.vau
	- Branch Wiring -Vault	9,880 SF	1.10	10,870	Electrical(ex.vau
				Carried Forward :	153,150

C2 ELECTRICAL		Quantity	Unit rate	Amount	Location
C22	Lighting, Devices & Heating (Continued)		Brought Forward :	153,150	
2	Exit & Emergency Lighting	1 Sum	12,700.00	12,700	
	- Exit Lighting -Purchase install and wire	27,457 SF	0.20	5,490	Electrical(ex.vau
	- Exit Lighting -Purchase install and wire -Vault	9,880 SF	0.20	1,980	Electrical(ex.vau
	- Emergency Lighting -Purchase install and wire battery packs	5 Allow	400.00	2,000	Electrical(ex.vau
	- Emergency Lighting -Purchase install and wire battery packs	2 Allow	400.00	800	Electrical
	- Emergency Lighting -Purchase install and wire Remote Heads	23 Allow	90.00	2,070	Electrical(ex.vau
	- Emergency Lighting -Purchase install and wire Remote Heads	4 Allow	90.00	360	Electrical
3	Lighting Control	1 Sum	43,040.00	43,040	
	- Allow for Local Switching and minimal occupancy sensors	27,457 SF	1.10	30,200	Electrical(ex.vau
	- Allow for Local Switching & Dimming control	9,880 SF	1.30	12,840	Electrical
4	Power Devices & Connections	1 Sum	97,490.00	97,490	
	- Receptacles & Power Connections	27,357 SF	2.50	68,390	Electrical(ex.vau
	- Receptacles & Power Connections	100 SF	4.00	400	Electrical(ex.vau
	- Receptacles & Power Connections	9,880 SF	2.50	24,700	Electrical
	- Receptacles & Power Connections	1 Allow	1,000.00	1,000	Electrical(ex.vau
	- Kitchen Equipment Connections	1 Sum	3,000.00	3,000	Electrical(ex.vau
5	Mechanical Connections	1 Sum	47,980.00	47,980	
	- Allowance for Branch Circuiting and Connections of Mechanical Equipment	27,457 SF	1.10	30,200	Electrical(ex.vau
	- Allowance for Branch Circuiting and Connections of Mechanical Equipment	9,880 SF	1.80	17,780	Electrical
6	Add RST at 7%	1 Sum	24,810.00	24,810	Electrical(ex.vau
C22	Lighting, Devices & Heating	TOTAL : \$	37,337 SF	10.16	379,200
C23	Systems & Ancillaries				
1	Fire Alarm	1 Sum	63,310.00	63,310	
	- New addressable system c/w FACP Annunciators and Devices	27,457 SF	2.00	54,910	Security, CCTV, F
	- Devices throughout	9,880 SF	0.80	7,900	Security, CCTV, F
	(Continued)				
			Carried Forward :	63,310	

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C2 ELECTRICAL		Quantity	Unit rate	Amount	Location
C23	Systems & Ancillaries (Continued)		Brought Forward :	63,310	
1	Fire Alarm (Continued)				
	- Device	1 Allow	500.00	500	Security, CCTV, F
2	Communications	1 Sum	60,850.00	60,850	
	- Conduit, Cabling, LAN Racks, Patch Panels & outlets	27,357 SF	2.00	54,710	Security, CCTV, F
	- Devices throughout	9,880 SF	0.50	4,940	Security, CCTV, F
	- V/D Outlets	2 Allow	300.00	600	Security, CCTV, F
	- V/D Outlets	2 Allow	300.00	600	Security, CCTV, F
3	CCTV	1 Sum	51,070.00	51,070	
	- Conduit, Cabling, Cameras & Head End	27,457 SF	1.50	41,190	Security, CCTV, F
	- Cameras	9,880 SF	1.00	9,880	Security, CCTV, F
4	Security	1 Sum	46,980.00	46,980	
	- Conduit, Cabling, Devices and integration to existing	27,357 SF	1.50	41,040	Security, CCTV, F
	- Devices	9,880 SF	0.50	4,940	Security, CCTV, F
	- Devices	1 No.	1,000.00	1,000	Security, CCTV, F
5	Access Control	1 Sum	26,840.00	26,840	
	- Conduit, Cabling, Devices and integration to existing	27,357 SF	0.80	21,890	Security, CCTV, F
	- Devices	9,880 SF	0.40	3,950	Security, CCTV, F
	- Devices	1 No.	1,000.00	1,000	Security, CCTV, F
6	Miscellaneous	1 Sum	34,000.00	34,000	
	- Permits & Inspections	1 Sum	4,000.00	4,000	Electrical(ex.vau
	- Demolition, Removal, Rework & Assistance	1 Sum	25,000.00	25,000	Electrical(ex.vau
	- Coordination With Other Divisions	1 Sum	2,500.00	2,500	Electrical(ex.vau
	- Firestop/Seal	1 Sum	1,500.00	1,500	Electrical(ex.vau
	- General Division 16 testing	1 Sum	1,000.00	1,000	Electrical(ex.vau
7	Add RST at 7%	1 Sum	19,820.00	19,820	Electrical(ex.vau
C23 Systems & Ancillaries		TOTAL : \$	37,337 SF	8.11	302,900

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D1 SITE WORK		Quantity	Unit rate	Amount	Location
D11 Site Development					
1	Demolish existing stair, completely	32 SF	6.50	210	
D11 Site Development		TOTAL : \$	137 SF	1.46	200

D13 Electrical Site Services

1	Incoming Power	1 Sum	6,500.00	6,500	
	- Utility charges for the deenergizing and reenergizing of existing service	1 Sum	5,000.00	5,000	Electrical(ex.vau
	- Coordination with Utility	1 Sum	1,500.00	1,500	Electrical(ex.vau

D13 Electrical Site Services		TOTAL : \$	1 Sum	6,500.00	6,500
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D2 ANCILLARY WORK		Quantity	Unit rate	Amount	Location
D21 Demolitions					
<u>Basement</u>					
1	Demolish existing slab to receive new piles, etc. completely	3,824 sf	6.00	22,940	Demo. of Exist. B
2	Demolish existing stair, completely	91 sf	6.50	590	
3	Remove existing single door	6 No.	100.00	600	
4	Remove existing double door	2 No.	150.00	300	
<u>Main Floor Level</u>					
5	Demolish existing stair, completely	85 sf	6.50	550	
6	Demolish existing vault	33 sf	15.00	500	
7	Demolish wood frame gypsum wall board framed partition	384 sf	2.00	770	
8	Remove existing single door	1 No.	100.00	100	
9	Remove existing floor finishes	8,672 sf	1.50	13,010	
10	Demolish existing sub-floor slab in climate control vault	2,312 sf	1.50	3,470	
11	Remove existing rubber base from perimeter wall @ rooms #103, 105 & 106	402 ft	3.00	1,210	
<u>Main Mezzanine</u>					
12	Demolish existing stair, completely	40 sf	6.50	260	
13	Remove existing floor finishes	1,972 sf	1.50	2,960	
14	Remove existing ceiling finishes	1,765 sf	1.50	2,650	
<u>Second Floor</u>					
15	Demolish existing stair, completely	67 sf	6.50	440	
16	Remove existing single door	1 No.	100.00	100	
17	Remove existing floor finishes	8,378 sf	1.50	12,570	
Carried Forward :				63,020	

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D2 ANCILLARY WORK		Quantity	Unit rate	Amount	Location
D21	Demolitions (Continued)		Brought Forward :	63,020	
	<u>Second Mezzanine Floor</u>				
18	Demolish existing stair, completely	48 sf	6.00	290	
19	Remove existing floor finishes	1,765 sf	1.50	2,650	
20	Remove existing ceiling finishes	1,468 sf	1.50	2,200	
	<u>Window Removal</u>				
21	Remove wood frames	46 No.	547.80	25,200	
	- W1, size 3'4"x3'4"	2 No.	150.00	300	Exterior Window U
	- W2, size 5'8"x19'11"	13 No.	700.00	9,100	Exterior Window U
	- W3, size 3'2"x19'6"	9 No.	500.00	4,500	Exterior Window U
	- W4, size 4'1"x3'5"	2 No.	150.00	300	Exterior Window U
	- W5, size 5'10"x12'1"	18 No.	600.00	10,800	Exterior Window U
	- W6, 2' dia	2 No.	100.00	200	Exterior Window U
	<u>Roof Structure</u>				
22	Remove existing roof, completely	9,107 sf	4.00	36,430	
23	Remove existing wall to receive new joist	46 sf	3.00	140	
D21	Demolitions	TOTAL : \$	37,337 SF	3.48	129,900
D22	Alterations				
1	Infill floor assembly due to stair demolition	331 sf	40.00	13,240	
	- Basement	91 sf	40.00	3,640	
	- Main Level	85 sf	40.00	3,400	
	- Main Mezzanine	40 sf	40.00	1,600	Structural infill
	- Second level	67 sf	40.00	2,680	
	- Second Mezzanine	48 sf	40.00	1,920	Structural infill
2	Infill existing interior door opening w/ masonry	91 sf	18.00	1,640	
	- Main Level	91 sf	18.00	1,640	Infill Ex. Openin
			Carried Forward :	14,880	

D2 ANCILLARY WORK		Quantity	Unit rate	Amount	Location
D22 Alterations	(Continued)		Brought Forward :	14,880	
3	New lintel	20 ft	60.00	1,200	
	- Basement	8 ft	60.00	480	
	- Main Level	3 ft	60.00	180	
	- Main Mezzanine	3 ft	60.00	180	
	- Second level	3 ft	60.00	180	
	- Second Mezzanine	3 ft	60.00	180	
4	New beams including connections to support the floor loads at Climate control vault	50,534 lb	2.30	116,220	
	- Main level	9,418 lb	2.30	21,660	Structural Upgrad
	- Main Mezzanine level	17,715 lb	2.30	40,740	Structural Upgrad
	- Second level	9,121 lb	2.30	20,980	Structural Upgrad
	- Second Mezzanine	14,280 lb	2.30	32,840	Structural Upgrad
5	Intumescent paint to new steel beams	50,534 lb	0.30	15,160	
	- Main level	9,418 lb	0.30	2,830	Structural Upgrad
	- Main Mezzanine level	17,715 lb	0.30	5,310	Structural Upgrad
	- Second level	9,121 lb	0.30	2,740	Structural Upgrad
	- Second Mezzanine	14,280 lb	0.30	4,280	Structural Upgrad
6	New Columns including connections to support the floor loads	7,478 lb	1.60	12,050	
	- Main Mezzanine level	2,152 lb	2.00	4,300	Structural Upgrad
	- Second level	915 lb	2.00	1,830	Structural Upgrad
	- Second Mezzanine	2,959 lb	2.00	5,920	Structural Upgrad
7	Intumescent paint to new steel columns	7,478 lb	0.30	2,250	
	- Main level	2,152 lb	0.30	650	Structural Upgrad
	- Main Mezzanine level	2,367 lb	0.30	710	Structural Upgrad
	- Second level	2,959 lb	0.30	890	Structural Upgrad
8	Patch & repair existing plaster ceiling	6,958 sf	4.00	27,830	
	- Main Floor	2,085 sf	4.00	8,340	
	- Second Floor	4,873 sf	4.00	19,490	
9	Infill existing window opening w/ masonry to inner face & brick to outer face to match existing	384 sf	40.00	15,360	Thermal & Moist.
Carried Forward :				204,950	

Appendix D

List of Reports and Drawings Supplied by the City of Winnipeg

Reports

Program Requirements: City of Winnipeg Archives and Records and Records Control Branch. City of Winnipeg Records Committee. Discussion Paper. April 2009.

Asbestos Inventory Control: 380 William Avenue. City of Winnipeg Planning, Property & Development Building Services Division. March 2009.

The Carnegie Building 380 William Avenue. Winnipeg. Building Structure Audit. Crosier Kilgour & Partners. September 2005.

Global Preservation Assessment. City of Winnipeg Archives. Rosaleen Hill Conservation Services. September 2002.

Manitoba Heritage Conservation Service Conservation Assessment. 380 William. Robert Ridgen. April 1997.

380 William Avenue. Winnipeg Public Library. Historical Buildings Committee. April 1984.

Drawings

PILING PLAN 1551.pdf	2008-006_Drawing_M1.pdf
PILING PLAN 1433.pdf	2008-006_Drawing_A4.pdf
M-4.pdf	2008-006_Drawing_E1.pdf
M-3.pdf	2008-006_Drawing_A3.pdf
M-2.pdf	2008-006_Drawing_A2.pdf
E-3.pdf	2008-006_Drawing_A1.pdf
M-1.pdf	2000-335_Drawing_S4.pdf
E-2.pdf	2000-335_Drawing_S3.pdf
E-1.pdf	2000-335_Drawing_S2.pdf
2009070TL002.pdf	2000-335_Drawing_S1.pdf
2008005V0.mcd	1996-004_Drawing_E1.pdf
2008005V0.dwg	1996-004_Drawing_A1.pdf
2008005V0 A3.pdf	0380WM02.dwg
2008005V0 A2.pdf	0380WM01.dwg
2008005V0 A1.pdf	0380WM0B.dwg
2009 Asbestos Inventory HB-19 380 William Ave (4).pdf	0380WM-BA1649D.pdf
2008-080_Drawing_S7.pdf	0380WM-BA1649C.pdf
2008-080_Drawing_S8.pdf	0380WM-BA1649B.pdf
2008-080_Drawing_S9.pdf	0380WM-BA-1744-8.pdf
2008-080_Drawing_S5.pdf	0380WM-BA-1744-9.pdf
2008-080_Drawing_S6.pdf	0380WM-BA-1744-10.pdf
2008-080_Drawing_S3.pdf	0380WM-BA1649A.pdf
2008-080_Drawing_S4.pdf	0380WM-BA-1744-7.pdf
2008-080_Drawing_S1.pdf	0380WM_'N'.pdf
2008-080_Drawing_S2.pdf	0380WM_'O'.pdf
2008-006_Drawing_M3.pdf	0380WM-BA-1744-1.pdf
2008-080_Drawing_L1.pdf	0380WM-BA-1744-2.pdf
2008-080_Drawing_L2.pdf	0380WM-BA-1744-3.pdf
2008-006_Drawing_M2.pdf	0380WM-BA-1744-4.pdf
2008-006_Drawing_E2.pdf	0380WM-BA-1744-5.pdf
	0380WM-BA-1744-6.pdf

0380WM_'M'.pdf
380WilliamOriginals 007.pdf
380WilliamOriginals 008.pdf
380WilliamOriginals 009.pdf
380WilliamOriginals 010.pdf
380WilliamOriginals 011.pdf
0380WM_'F'.pdf
0380WM_'G'.pdf
0380WM_'H'.pdf
0380WM_'I'.pdf
0380WM_'J'.pdf
0380WM_'K'.pdf
0380WM_'L'.pdf
West Elevation 0380WM-BA-1744-8.pdf
1-6351.pdf

1-A.pdf
2-A.pdf
3-A.pdf
380 WILLIAM DRAWING LIST.pdf
380William_Baseplan_0B.pdf
380William_Baseplan_01.pdf
380William_Baseplan_02.pdf
380WilliamOriginals 001.pdf
380WilliamOriginals 002.pdf
380WilliamOriginals 003.pdf
380WilliamOriginals 004.pdf
380WilliamOriginals 005.pdf
380WilliamOriginals 006.pdf
East Elevation 0380WM-BA-1744-6 .pdf
South Elevation 0380WM-BA-1744-7 .pdf